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CALIFORNIA ACADEMY OF SCIENCES
GOLDEN GATE PARK
STEINHART AQUARIUM • NATURAL HISTORY MUSEUM
MORRISON PLANETARIUM • EDUCATION • RESEARCH

FINAL ENVIRONMENTAL IMPACT REPORT

SAN FRANCISCO PLANNING DEPARTMENT

2002.0782E

STATE CLEARING HOUSE NO. 2002092097

DRAFT EIR PUBLICATION DATE: MARCH 15, 2003

DRAFT EIR PUBLIC HEARING DATE: APRIL 24, 2003

DRAFT EIR PUBLIC COMMENT PERIOD:
MARCH 15, 2003 TO APRIL 29, 2003

FINAL EIR CERTIFICATION DATE:
JULY 10, 2003

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● Indicates material that is new or has been revised since publication of the Draft Environmental Impact Report



California Academy of Sciences

Final Environmental Impact Report

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July 10, 2003
File No. 2002.0782E
California Academy of Sciences Project
Part of Assessor's Block 1700, Lot 1

SAN FRANCISCO
CITY PLANNING COMMISSION
MOTION NO. 16609

ADOPTING FINDINGS RELATED TO THE CERTIFICATION OF A FINAL ENVIRONMENTAL IMPACT REPORT FOR THE CALIFORNIA ACADEMY OF SCIENCES, LOCATED ON ACADEMY DRIVE, ON THE SOUTH SIDE OF THE MUSIC CONCOURSE, AT THE SITE OF THE EXISTING ACADEMY, WITHIN GOLDEN GATE PARK.

MOVED, That the San Francisco Planning Commission (hereinafter "Commission") hereby CERTIFIES the Final Environmental Impact Report identified as case file No. 2002.07825E: California Academy of Sciences, (hereinafter "Project") based upon the following findings:

1) The City and County of San Francisco, acting through the Planning Department (hereinafter "Department") fulfilled all procedural requirements of the California Environmental Quality Act (Cal. Pub. Res. Code Sections 21000 et seq., hereinafter "CEQA"), the State CEQA Guidelines (Cal. Admin. Code Title 14, Sections 15000 et. seq., (hereinafter "CEQA Guidelines") and Chapter 31 of the San Francisco Administrative Code (hereinafter "Chapter 31").

a. The Department determined that an Environmental Impact Report was required and provided public notice of that determination by publication in a newspaper of general circulation on September 28, 2002.

b. On March 15, 2003, the Department published the Draft Environmental Impact Report (hereinafter "DEIR") and provided public notice in a newspaper of general circulation of the availability of the DEIR for public review and comment and of the date and time of the Planning Commission public hearing on the DEIR.

c. Notices of availability of the DEIR and of the date and time of the public hearing were posted near the project site by Department staff on or about March 15, 2003.

d. On or about March 15, 2003, copies of the DEIR or notice of its availability were mailed or otherwise delivered to a list of persons requesting it, to those noted on the distribution list in the DEIR, to adjacent property owners, and to government agencies.

e. Notice of Completion was filed with the State Secretary of Resources via the State Clearinghouse on or about March 15, 2003.

CITY PLANNING COMMISSION

July 10, 2003

File No. 2002.0782E

California Academy of Sciences Project

Part of Assessor's Block 1700, Lot 1

Motion No. 16609

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2) The Commission held a duly advertised public hearing on said DEIR on April 24, 2003 at which it gave opportunity for public comment, and received public comment on the DEIR. The period for acceptance of written comments ended on April 29, 2003.

3) The Department prepared responses to comments on environmental issues received at the public hearing and in writing during the 45-day public review period for the DEIR, prepared revisions to the text of the DEIR in response to comments received during the public review period or based on additional information that became available and corrected errors in the DEIR. This material was presented in a "Draft Summary of Comments and Responses," published on June 27, 2003, was distributed to the Commission and to all parties who commented on the DEIR, and was available to others upon request at Department offices.

4) The text amendments do not change the conclusions reached in the FEIR but update the text to reflect minor changes in the Project and to provide additional information. The changes and any other information that has become available since publication of the DEIR do not require recirculation of the revised FEIR according to CEQA Guidelines Section 15088.5 because said revisions and information do not identify any new or more severe environmental impacts, new mitigation measures, or different alternatives. The Commission specifically finds that recirculation of the document is not required.

5) A Final Environmental Impact Report (hereinafter "FEIR") has been prepared by the Department, consisting of the DEIR, any consultations and comments received during the review process, any additional information that became available, and the Summary of Comments and Responses all as required by law.

6) Project FEIR files have been made available for review by the Commission and the public. These files are available for public review by appointment at the Department offices at 1660 Mission Street, and are part of the record before the Commission.

7) On July 10, 2003, the Commission reviewed and considered the FEIR and hereby does find that the contents of said report and the procedures through which the FEIR was prepared, publicized and reviewed comply with the provisions of CEQA, the CEQA Guidelines and Chapter 31.

8) The Planning Commission hereby does find that the FEIR concerning File No. 2002.0782: California Academy of Sciences reflects the independent judgment and analysis of the City and County of San Francisco, is adequate, accurate and objective, and that the Summary of Comments and Responses contains no significant revisions to the Draft Environmental Impact Report, and hereby does CERTIFY THE COMPLETION of said FEIR in compliance with CEQA, the CEQA Guidelines, and Chapter 31.

CITY PLANNING COMMISSION

July 10, 2003

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California Academy of Sciences Project

Part of Assessor's Block 1700, Lot 1

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9) The Commission, in certifying the completion of said FEIR, hereby does find that the proposed project described in the Environmental Impact Report would have significant unavoidable environmental impacts which cannot be mitigated to a level of insignificance. The project would demolish historic resources. This effect on historic resources could be eliminated only by selection of an alternative project design. Year 2015 cumulative conditions at the following intersections would operate at LOS E or F, a significant adverse cumulative effect: Fulton/Stanyan, Fulton/Arguello, Park Presidio/Fulton, King/Crossover, and Lincoln/Nineteenth. The Project would contribute significantly only to cumulative conditions at the Fulton/Stanyan intersection, which can be mitigated to a less-than-significant level. While the project would not contribute significantly to cumulative conditions at the remaining intersections, only the Park Presidio/Fulton and Fulton/Arguello intersections could be mitigated to less-than-significant levels. These mitigation measures are not the Project responsibility because of the Project's limited contribution to the significant impacts. No mitigation measures are available to avoid or reduce significant 2015 cumulative conditions to the remaining intersections of King/Crossover and Lincoln/Nineteenth. This is not the Project responsibility because of the Project's limited contribution to the significant impacts.

I hereby certify that the foregoing Motion was ADOPTED by the Planning Commission at its regular meeting of July 10, 2003.

Linda Avery
Commission Secretary

ACTION: EIR CERTIFIED

AYES: 7

NAYES: 0

ABSENT: 0

I. SUMMARY

A. PROJECT DESCRIPTION

The California Academy of Sciences (referred to as the CAS or the Academy in this EIR) proposes to build a new CAS on the site of the existing facility in Golden Gate Park. The project site is on Academy Drive, on the south side of the Music Concourse in Golden Gate Park and is bordered on the north by the Music Concourse (across Academy Drive), on the southwest by the Shakespeare Garden, on the south by the Big Rec Ball Field (across Middle Drive East) and on the east by a meadow and woods within the Park, including the McLaren Rhododendron Dell. The project would demolish 11 of 12 existing buildings while retaining and rehabilitating Simson Africa Hall in place. The floor area would increase by approximately 40,000 sq. ft., from approximately 350,000 sq. ft. to approximately 390,000 sq. ft. Overall, the new Academy would increase the floor area of the museum's functions on a smaller footprint than the existing facility (from approximately 240,000 sq. ft. to approximately 205,000 sq. ft.). This increase in area on a smaller footprint is possible primarily because the new plans would significantly increase basement level areas.

The Academy would retain its general location and orientation. The entrance on Academy Drive would be shifted to the northeast to center the facility on the site. The new configuration would provide an increased building setback from the Shakespeare Garden area by approximately 91 additional feet from the building's west-facing façade.

The new Academy would consist of three principal components organized around a central exhibition space and open piazza - all enclosed under a single roof. The facility would include three main levels above grade, two levels below grade beneath the research, collections and administration (RC&A) portion of the CAS, and one below grade level elsewhere. A loading area would be at the southwestern portion of the project site. Simson Africa Hall would be retained and integrated into the design, including most of the African diorama exhibits. The main features of the new Academy would be the main lobby and courtyard, public education and new exhibit spaces (including an aquarium, planetarium, and rainforest areas), natural history museum, environmental resource center, auditorium, classrooms, laboratories,

research, collections, and administration space, cafe and lunch room areas, a loading dock, approximately 15 service and Academy vehicle spaces on-site within the below grade loading dock driveway area, and other museum-related uses.

The new Academy building would be approximately 460 feet long, and 280 feet wide, with the edges of the roof extending to approximately 520 feet long by 335 feet wide, and would feature a landscaped roof, the base height of which would be under 40 feet. Above the base, the landscaped roof would undulate to accommodate the Academy's major programmatic components beneath, with the two peak elements over the planetarium and rainforest exhibits reaching a height of about 67 feet, or approximately 13 feet higher than the highest existing point, the dome of Morrison Planetarium. These two peaks would be set back approximately 150 feet from the roof's edge along Academy Drive. The roof's shape would follow the contours of these central building components and exhibits and would be intended to read as an organic park-like element unifying the elements of the facility and integrating the structure with the Park's adjacent landscaping. The roof would incorporate living plants and glass expanses, and provide limited opportunity for public access. The roof would extend beyond the building's walls by approximately 34 feet. The extension would be designed as a trellis. The roof perimeter would be supported by a series of slender (approximately 8-inch diameter) steel columns. The ground beneath the extended roof would consist of landscaped areas within the Academy's jurisdiction, but designed to appear as an extension of the Park.

The facility has been designed to a high level of sustainability. The most recognizable "green" feature would be the planted roof, which would provide insulation (thereby reducing energy use), slow runoff, return runoff to the aquifer, and significantly lessen the "urban heat island effect," or the tendency for large, paved surfaces to generate and reflect heat into the environment. It also would incorporate renewable building materials; including glazed, transparent façades, roof sections and lighting controls designed to maximize use of natural daylight; provide solar controls, incorporated primarily in the roof, overhang and associated shading devices; feature a natural ventilation system, implemented largely through the roof design, operable windows and the configuration of the exhibit area; and include reclaimed water and stormwater recharge systems. The facility is also a pilot program of the Sustainability Program for the City of San Francisco.

The project (including the collections growth below) would include a landscaping plan developed in consultation with the Recreation & Park Department and in consideration of the pastoral character of the Park. It would provide, among other things, for retention of significant landscape features and circulation patterns, and replanting including in areas where new parkland is made available through reconfiguration of the building footprint.

The new Academy would be designed to accommodate space needs for approximately twenty years after opening. Should additional space for the collections growth be required at that time, it would be constructed and accommodated in an additional two-story basement expansion space approximately 80,000 sq. ft. in size, with a footprint of about 80 feet (north/south) by 440 feet (east/west) to be located below grade behind the Middle Drive East entrance, to the south of the main facility. This additional collections space is included as part of the project. The collections growth space would face the open air light well created by the adjacent façade as part of the new CAS facility. The distance between the adjacent façades would be about 40 feet, creating a courtyard at the lower basement level. A new corridor would connect the collection growth space to the balance of the facility. The southernmost wall of the collection growth space would be approximately 45 feet from the curbline of Middle Drive East.

Other projects in the Concourse Area included are the New deYoung Museum and the Golden Gate Park Concourse Authority (GGPCA) Projects, including the Underground Parking Facility for approximately 800 vehicles (one surface space in the Park would be removed for each space in the new facility), and the Underground Through Road. The under construction New deYoung Museum and the proposed Golden Gate Park Concourse Authority Projects are not part of the Academy of Sciences project, and are proceeding independently. In contrast to New deYoung Museum project, there would be no underground connection between the CAS and the Underground Parking Facility. Coordination among the Academy of Sciences, the Golden Gate Park Concourse Authority, the New deYoung Museum, the Recreation and Park Department and Commission, and other affected agencies is currently occurring on a regular basis. This coordination would continue during the implementation of the Academy of Sciences project. Cumulative impacts of these projects in Golden Gate Park are discussed in this EIR as appropriate. In addition, the Board of Supervisors is currently considering

legislation to implement a partial closure of Kennedy Drive on Saturdays. This proposal is not part of the Academy of Sciences project, the New de Young Museum, or the Golden Gate Park Concourse Authority Projects, but is evaluated in this EIR in a cumulative context, including a consistent cumulative transportation methodology and impacts analysis.

During the building effort, the Academy would temporarily relocate to a transition facility at 875 Howard Street near Fifth Street in downtown San Francisco for a period of four years (approximately from December 2003 to December 2007), while the existing permanent facilities in Golden Gate Park are being rebuilt. The building at 875 Howard Street is a six-story concrete warehouse with a single basement level approximately 276,800 gsf in total area. Approximately 92,100 gsf of existing retail uses (Burlington Coat Factory) would remain, providing the CAS with a total of about 184,700 gsf of temporary uses. The CAS activities in the transition space would be similar to those at the current facility with a substantially smaller exhibit/public support component. As such, most of the space would be used for research, administration and collections. Interior tenant improvements and exterior minor alterations would occur at this facility to accommodate the CAS functions and services during the transition period. The 875 Howard Street site is the subject of a Negative Declaration published in 2000 (and related approvals) for office and accessory uses, as discussed in the project description. That Negative Declaration is incorporated herein by reference. The Department has concluded that office/retail project would not result in any significant impacts and is currently preparing an addendum based on that Negative Declaration to provide environmental clearance for the proposed CAS transition facility.

B. MAIN ENVIRONMENTAL EFFECTS

The Initial Study, published on September 23, 2002, found that the project would not cause potential significant environmental effects in the following areas: land use, light and glare, population, employment and housing; noise; construction-related air quality; wind; utilities and public services, biology, geology and topography, water, hazards, energy and natural resources, and archaeological resources, and therefore required no further analysis of these potential effects in the EIR (see Appendix A, p. A.1, Initial Study). Land use is included in

the EIR for informational purposes. Other topics analyzed in this EIR include transportation, historic resources, visual quality, air quality, and shadows.

LAND USE, PLANS, AND ZONING (P. 24)

The Initial Study, published on September 28, 2002, found that the land use changes would not cause potential significant environmental effects, but a discussion is included in the EIR for informational purposes only. The proposed CAS would be consistent with the current uses and the land use zones around the Park. The proposed project would be a continuation of existing Park activities and would be consistent with the P (Public Use) Zoning District. Permitted uses in a P zoning district include public structures of the city and other governmental agencies when in conformity with the San Francisco General Plan. The Park is within an OS (Open Space) Height and Bulk district where there are no specific height and bulk limits.

The project would increase the overall floor area of the Academy by approximately 40,000 square feet on a smaller footprint. Much of this increase in square footage would be in terms of additional research, collections, and administrative space, as well as mechanical, electrical, and aquatic life-support functions. Square footage devoted to museum use would remain relatively constant compared to existing levels. The project would contain similar educational and recreational features as are currently provided by the existing Academy, in a more efficient layout. The uses would be consistent with the cultural, educational, and recreational uses of the museum and Golden Gate Park as a whole. Overall, the project would be consistent with uses on the site since the establishment of the Academy in 1916.

TRANSPORTATION (P. 34)

Traffic

The traffic analysis included 23 study intersections as locations likely to be affected by the proposed project. These intersections include most of the local intersections adjacent to the Music Concourse, plus those along main access routes to and from Golden Gate Park. The transportation study evaluated intersection operating conditions for the Saturday and Sunday Midday peak hour (generally 2:00 to 3:00 PM), as this is the peak period of traffic volumes in

the vicinity of the project site. In addition, transit, parking, loading, construction, and pedestrian and bicyclists impacts were also evaluated in the transportation study.

To account for the occupancy of the New deYoung Museum, which is currently undergoing construction and is anticipated to open in mid-2005, prior to the occupancy of the proposed project, a Baseline condition was established which includes travel demand by the New deYoung Museum. A Baseline Plus Project condition was established to identify the project's contribution to traffic impacts in the study area. In addition, to evaluate the combined effects of the proposed project and the planned GGPAC Underground Parking Facility project, an additional analysis was performed, which evaluated the project with the Underground Parking Facility (Baseline plus Project Plus Underground Parking Facility) and its associated transportation improvement elements.

On Saturdays, the new CAS would generate approximately 730 net-new midday peak hour person-trips (380 inbound and 350 outbound), and approximately 665 net-new midday peak hour person-trips (345 inbound and 320 outbound) on Sundays.

During the Saturday and Sunday midday peak hour, all of the signalized study intersections currently operate acceptably under Baseline conditions, except the intersection of Fulton/Stanyan, which has a Level of Service (LOS) E on Saturday midday and LOS F on Sunday midday. Under the Baseline Plus Project conditions, all study intersections would operate with similar conditions to the Baseline conditions, with slight increases in the average delay per vehicle at most of the study intersections, including the Fulton/Stanyan intersection. Level of service conditions would remain unchanged compared with Baseline conditions. Overall, the proposed project would be considered to result in no significant traffic impacts during the Saturday midday and Sunday midday peak hours.

Under the Baseline Plus Project Plus Underground Parking Facility conditions, all study intersections would operate with similar conditions to the Baseline and Baseline Plus Project conditions. It should be noted that operating conditions of some of the study intersections would improve with the Underground Parking Facility, as a result of the elimination of on-street parking supply, and reassignment of related vehicle trips to different roadways and intersections.

The San Francisco Board of Supervisors is considering legislation to implement additional road closures within Golden Gate Park on Saturdays. The Saturday closure would include the following streets in the Park: Kennedy Drive between Kezar Drive and Eighth Avenue, Arguello Boulevard between Fulton Street and Kennedy Drive, Conservatory Drive East and West, and Bowling Green Drive between Kennedy Drive and Middle Drive East. As part of the environmental review of the Saturday closure, the effect of the Kennedy Drive Saturday closure on intersection operating conditions was analyzed for all Existing Baseline, and Cumulative conditions. With the new CAS, and the new deYoung Museum, the proposed closure would result in one additional impact to intersection operating conditions during the Saturday midday peak hour: Fulton/Stanyan (LOS E to LOS F). This impact of the Kennedy Drive Saturday closure would be due to the diversion of vehicles from Kennedy Drive to Fulton Street on the north side of the Park. This impact could be mitigated to a level of insignificance with improvements to this intersection, as described in Section IV, Mitigation Measures.

The proposed Saturday closure of Kennedy Drive was also identified to have significant traffic impacts with the other analysis scenarios. Under Existing conditions, the proposed closure would have a significant impact at the intersection of Fulton/Stanyan. Under Existing plus New deYoung plus new CAS plus Concourse Garage conditions, the proposed closure would have significant impacts at the intersections of Fulton/Stanyan and King/Middle Drive East. Under 2015 Cumulative without Concourse Garage conditions, the proposed closure would have significant impacts at the intersections of Fulton/Eighth, Fulton/Arguello and Fulton/Stanyan. Under 2015 Cumulative with Concourse Garage conditions, the proposed closure would have significant impacts at the intersections of Fulton/Arguello, Fulton/Stanyan and King/Middle Drive East.

All significant impacts of the Kennedy Drive Saturday closure could be mitigated, with the exception of Fulton/Stanyan under the 2015 Cumulative scenarios. When the Saturday closure project is added to the 2015 cumulative conditions which consider the other Park projects, the previously identified mitigation measure would not improve operating conditions to acceptable levels. As a result, a monitoring program would be established (if and when unacceptable

conditions are observed that could not be mitigated by other measures, the Saturday closure of Kennedy Drive would be discontinued).

Parking Impacts

The proposed project would provide 15 parallel parking spaces to be located along the driveway in the below-grade loading dock area. These spaces would be designated for service vehicles and CAS vehicles, and therefore would not be available for visitors and staff. The proposed project would have a total parking demand for about 187 spaces during the Saturday midday peak period and 171 spaces during the Sunday midday peak period (including both visitor and staff parking demand). Since the proposed project would not provide any visitor/staff parking, it would have a parking shortfall of about 187 spaces during the Saturday midday peak period and 171 spaces during the Sunday midday peak period. On Saturdays, parking occupancy in the study area would increase from 91 percent to 93 percent. On Sundays, parking occupancy in the study area would increase from 97 percent to 99 percent. With these conditions, parking would be extremely difficult to find and there would be competition for spaces between neighborhood residents, retail/commercial patrons and Park users. As a result, some parkers would seek parking further away, outside the study area.

Under Baseline Plus Project Plus Underground Parking Facility conditions, the overall parking supply would increase in the Concourse area with the addition of the garage, and as a result parking occupancy in the larger study area would decrease from Baseline plus Project conditions. (As noted earlier, implementation of the Underground Parking Facility would include removal of one surface space for each parking space in the new facility.) During the Saturday midday period, the overall parking occupancy would decrease from 93 percent to 90 percent; during the Sunday midday period, the overall parking occupancy would decrease from 99 percent to 93 percent. With the Underground Parking Facility, the increase in parking supply would result in a decrease in the number of drivers that might seek parking spaces outside the Park.

Drivers circling for parking within the Park and the surrounding neighborhoods may result in an increase in traffic volumes and congestion at intersections, including delays to traffic flow and MUNI bus operations. In addition, parking occupancies outside the study area would

likely increase, and there would be the increased potential for illegal parking. As the available parking supply within the Park and the surrounding neighborhoods is not concentrated in one location, the new vehicle trips generated by the proposed project would be distributed throughout the study area. Therefore, there would not be a substantial increase in traffic volumes along most streets in and around the Park. Because these activities are temporary and difficult to predict, they cannot be reliably quantified. Therefore, it is not anticipated that the proposed project would have significant secondary parking impacts.

It should be noted that the CAS currently provides transit information on their phone system and on their website, including directions to the facility via transit from San Francisco, North Bay, South Bay and East Bay, plus transit agency links and phone numbers. In addition, visitors currently receive discounts on their admission for taking MUNI or riding a bicycle to the CAS. It is anticipated that these programs would continue with the proposed project. In addition, the proposed project would provide more bicycle parking spaces than required by Code, which would facilitate bicycle use by employees and visitors. Additional improvement measures have been identified to help reduce the number of visitors that would use auto to access the new CAS. These measures are detailed in Section IV, Mitigation Measures. In combination, the existing and proposed transit/bicycle programs would help to reduce the number of visitors that would use autos and therefore would reduce the potential for additional effects to traffic, parking and transit operations.

For the reasons described above, the proposed project would not be considered to have significant secondary parking impacts.

Transit Impacts

The proposed project would generate about 55 net-new transit trips (30 inbound and 25 outbound) during the Saturday midday peak hour and 50 net-new transit trips (25 inbound and 25 outbound) during the Sunday midday peak hour. These trips would take one of the nearby MUNI bus or Metro lines and may transfer to other MUNI lines or regional transit providers. Based on recent field observations, it was estimated that the six MUNI bus lines and the N-Judah light rail line that operate in the vicinity of Golden Gate Park currently have capacity

available during the Saturday midday and Sunday midday that could be used to accommodate the trips generated by the proposed project.

Overall, vehicular traffic and transit, such as the MUNI N-Judah and the 44-O'Shaughnessy, was observed to travel through the Ninth/Irving intersection without substantial delay during the Saturday midday and Sunday midday peak hours, except for minor delays due to heavy pedestrian volumes. In general, the MUNI N-Judah light rail line and the 44-O'Shaughnessy bus line are not substantially delayed by traffic operations on Ninth Avenue or Irving Street. In some instances, however, vehicle queues from the intersection of Ninth /Lincoln can delay traffic flow and bus operations on northbound Ninth Avenue. When the MUNI N-Judah light rail line stops in the northbound and westbound directions, the trains block the travel lane. During these times, there is a temporary increase in vehicular and transit delay (44-O'Shaughnessy in the northbound direction only); however, these delays do not substantially affect traffic and transit operations at the intersection.

The proposed project would generate approximately 160 net-new vehicle trips during the Saturday midday peak hour and 145 net-new vehicle trips during the Sunday midday peak hour; it is not anticipated that these additional vehicles would substantially affect operations of the MUNI 44-line within Golden Gate Park or the other MUNI bus lines and light rail lines in the area. As the available parking supply within the Park and the surrounding neighborhoods is not concentrated in one location, the new vehicle trips generated by the proposed project would be distributed throughout the study area. Therefore, there would not be a substantial increase in traffic volumes along most streets in and around the Park.

Additional vehicle traffic along Kennedy Drive and Ninth Avenue might result in increased delay to MUNI 44-O'Shaughnessy line operations, particularly at the intersections of Ninth/Lincoln and Ninth/Irving. However, the proposed project would add about 20 vehicles during the Saturday midday peak hour and 30 vehicles during the Sunday midday peak hour to King Drive, and would add fewer than 10 vehicles during the Saturday midday and Sunday midday peak hours to Ninth Avenue (less than a 2.0 percent increase in traffic volumes on both streets). The addition of those vehicle trips would result in an average increase in delay of less than four seconds per vehicle in both the northbound and southbound directions (as

estimated from the intersection level of service calculations). As a result, the proposed project would not result in substantial increases in the delays to transit service.

Pedestrian Impacts

Pedestrian trips generated by the proposed project would include walk trips to and from the new CAS (i.e., walk as primary mode), plus walk trips to and from parking spaces, local and regional transit operators, and other uses within the Park. As such, the majority of the net-new person-trips generated by the proposed project would be pedestrian trips in the vicinity of the project site. It is anticipated that these new pedestrian trips could be accommodated on the sidewalks and pedestrian paths adjacent to the project site and would not substantially affect the current sidewalk or crosswalk conditions. The basic circulation pattern on the site would be retained, with pedestrian access around the CAS perimeter.

If the GGPCA Projects were implemented, the ramp into the Underground Parking Facility at Academy Drive would be designed so that the south pedestrian sidewalk would continue into the plaza in front of the new CAS, and a pedestrian walkway and a crosswalk across Academy Drive would be provided at the westerly end of the plaza. Pedestrians would generally benefit from the GGPCA Projects, which would include narrowing of roadways, and improved landscaping and pedestrian paths in the Concourse and vicinity, if implemented as part of the GGPCA Projects.

Bicycle Impacts

The proposed project would meet the Planning Code requirement of approximately 11 bicycle spaces for employees, at least one-half of which would be Class I spaces. The project would propose to include additional bicycle spaces beyond the Code requirement for employees and patrons. The bicycle spaces are currently proposed to be located near the Academy Drive and Middle Drive East entrances. Although the proposed project would result in an increase in the number of vehicles and bicyclists in the vicinity of the project site, this increase would not be substantial enough to affect bicycle travel in the area. If the GGPCA Projects were implemented, the surface improvements would further improve bicycle conditions.

Service and Passenger Loading Impacts

Service Loading. The proposed project would provide an off-street, below-grade loading area, approximately 56 feet wide by 82 feet long, with a raised platform for storage and receiving space. In addition, the loading area would accommodate up to three vehicles, including space for two small trucks/vans and one semi-truck. It is estimated that there would be a demand for less than two loading spaces on average, and a demand for less than three loading spaces during the peak hour of loading activities. As such, the proposed supply would be sufficient to meet anticipated demand.

Passenger Loading. The project sponsor anticipates that the number of school groups and camp groups would remain relatively constant with the proposed project. However, there would likely be a minor increase in tour groups. Based on the current operations of the school/camp/tour groups and the proposed reconfiguration of Academy Drive, it is anticipated that any increases in bus activity could be accommodated without substantially affecting vehicular circulation on the surrounding roadways.

Construction Impacts

Construction of the proposed project is expected to take approximately four years, including exhibit installation. It is anticipated that construction activities would start in Spring 2004 and be completed in early 2007, with the facility re-opening to the public in early 2008 after a year of interior exhibit construction and installation/testing. Detailed plans for construction activities have not yet been finalized; however, there would be five primary construction phases: abatement/demolition, excavation and shoring, concrete and structure, interior buildout and move-in. During the construction period, there would be a flow of construction-related trucks into and out of the Music Concourse area. The impact of construction truck traffic would be a temporary lessening of the capacities of streets due to the slower movement and larger turning radii of trucks. Construction workers would cause a temporary parking demand, which would need to be addressed in coordinated construction planning.

Construction staging would occur primarily within the site of the existing building and other areas identified in consultation with the Recreation and Park Department as part of the

construction coordination plan. No important landscape areas would be used for staging. It is not anticipated that any traffic lanes or sidewalks would need to be closed during the construction duration, except for the north sidewalk on Middle Drive East, between the west-most portion of the site to the east-most portion of the staging site. If it is determined that additional sidewalk closures or temporary traffic lane closures would be needed, the closures would be coordinated with the City in order to minimize the impacts on local traffic and use of the Park. In general, lane and sidewalk closures outside the park are subject to review and approval by the Department of Public Works (DPW) and the Interdepartmental Staff Committee on Traffic and Transportation (ISCOTT) with closures in the park reviewed and approved by the Recreation and Park Department.

Construction activities associated with the proposed project would overlap the construction phases of other planned projects in the vicinity of the site, particularly the ongoing construction of the New deYoung Museum and the anticipated construction of the proposed Underground Parking Facility. The construction activities associated with these projects would affect access, traffic operations, bus operation and pedestrian movements. In combination, the potential overlapping construction of these projects may result in temporarily increased congestion in the area, plus inconveniences to motorists, pedestrians, bicyclists and transit patrons. To reduce the combined effect of these construction impacts, each individual project sponsor would work through the existing concourse coordination group and with various departments of the City (Department of Parking and Traffic, MUNI, the Fire Department, etc.) to develop a detailed and coordinated plan that would address construction vehicle routing, traffic control and pedestrian movement adjacent to the construction area.

Year 2015 Cumulative Conditions

By 2015, there is anticipated to be a substantial increase in traffic volumes along the major streets outside the Park, including Park Presidio Boulevard/Crossover Drive, Fulton Street and Stanyan Street, and along Kennedy Drive and Kezar Drive/King Drive inside the Park. As a result, most of the study intersections along these streets would operate at LOS E or F during the two study periods.

Separate 2015 Cumulative conditions were developed with and without Underground Parking Facility scenarios, since the reconfiguration of the Park roadways and the changes to parking within the Park would substantially affect the traffic volumes at the study intersections.

The CAS traffic would contribute to the changes in traffic volumes at the five intersections that would operate at LOS E or F with cumulative conditions (Park Presidio/Fulton, Fulton/Arguello, Fulton/Stanyon, King/Crossover, and Lincoln/Nineteenth); the new CAS would contribute to the cumulative conditions at these intersections with or without the Underground Parking Facility. However, the CAS project-related traffic would not represent a considerable contribution to the vehicular movements which determine the unacceptable levels of service under 2015 Cumulative conditions at four out of the five intersections (Presidio/Fulton, Fulton/Arguello, King/Crossover and Lincoln/Nineteenth). The CAS project would be considered to have a significant contribution to cumulative conditions only at the Fulton/Stanyan intersection during the Saturday and Sunday midday peak hour, both With and Without Underground Parking Facility scenarios. At this location, the CAS would add a substantial number of vehicles to the movements which would determine the overall level of service conditions at this intersection. This would be considered a significant impact. Mitigation measures included as part of the project to reduce this impact to a less-than-significant level include working with DPT to change the signal timing of the Fulton/Stanyan intersection.

HISTORIC RESOURCES (P. 89)

None of the individual buildings which comprise the CAS, nor the CAS as a whole, are listed on the National Register of Historic Places, the California Register of Historic Resources, or is a City of San Francisco Landmark. However, Golden Gate Park, as a whole, has been proposed as a National Register District. The National Register of Historic Places Registration Form lists the existing CAS as contributing feature of the proposed Historic District, but does not distinguish among individual buildings and identifies the CAS as an individual complex, and remarks that while the CAS retains its historic use, the complex has been “severely altered.”

The Music Concourse, immediately adjacent to the CAS, has been determined to be individually eligible for the *California Register* as a designed landscape associated with the California Mid-Winter Exposition of 1894 and the early development of the cultural center of Golden Gate Park.

An historic resources evaluation of the CAS was prepared to determine the facility's eligibility for listing in the *California Register*. In general, the evaluation considered the historic significance of the separate buildings which comprise the CAS, and did not evaluate the facility as an entire complex. This is a conservative approach in that an individual building may be deemed to meet the criteria despite alterations to other buildings that have adversely impacted the integrity of the complex if taken as a whole.

The historic resources evaluation concluded that Simson African Hall, Science Hall/Morrison Planetarium, and the Steinhart Aquarium are potentially eligible for listing in the *California Register* as individual buildings, due to their age, integrity, and historic significance under *California Register* criteria as described below.

Built in 1923, Steinhart Aquarium is significant under California Register Criterion as San Francisco's first modern aquarium, specializing in the flora and fauna of the North Pacific, and as a symbol of San Francisco's growing prestige as a major American city. The aquarium is a unique building type, and was one of the largest and most complete aquaria in the nation when first constructed. The Neo-Classical style Steinhart is also significant as an example of a work of a master architect, Lewis Hobart. Much of the original interior and visible portions of the exterior of the Steinhart Aquarium retain a moderate-to-high degree of integrity.

Built in 1934, Simson African Hall is significant under California Register Criterion for its association with the physical expansion of the CAS, as it evolved into one of America's most important natural science museums. Simson African Hall is also significant as a distinctive style of Classical Revival architecture, and as an example of a work of a master architect, Lewis Hobart. The interior of Simson African Hall retains the highest degree of integrity of any building at the CAS, and the main exhibit hall, which houses the original African diorama exhibits, is almost unaltered from its original appearance. In addition, the exterior of Simson African Hall has undergone few alterations.

Built in 1952, Science Hall/Morrison Planetarium is significant under California Register Criterion for its association with the oldest and most distinguished scientific academy on the West Coast, having made broad contributions to research and education within the State of California, and for its association with the Optical Repair Shop. During World War II, professional astronomers, faculty from the University of California and others set up shop in the CAS to repair naval and army optical equipment. Following the war, some of these professionals fashioned the star projector from spare parts. The most significant interior space in that building is the interior of Morrison Planetarium, which retains the original star projector, the original perforated metal dome with San Francisco's 1952 skyline cut out of the bottom edge, as well as the original seating. Visible portions of the exterior have undergone few changes, especially the west elevation facing Central Court.

Project Impacts on the CAS

The proposed project would demolish eleven of the twelve CAS buildings incorporating Simson African Hall into the new facility. Demolition of Steinhart Aquarium and Science Hall/Morrison Planetarium by definition would "alter in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the *California Register of Historical Resources*." As defined by CEQA, the proposed project would have substantial adverse change on the eligibility of both Steinhart Aquarium and Science Hall/Morrison Planetarium. This is considered a potentially significant unavoidable impact.

The proposed project would envelop Simson African Hall and add to the massing of the structure. The new overhanging and undulating roof would visually alter the appearance of the north-facing façade. These changes would effectively alter the spatial relationship of the building to its original surrounding environment and change the original massing design. The proposed design would preserve many character defining features of the building such as the main hall and the exhibit dioramas on the interior, as well as the north and west elevations. However, changes to the interior plan would alter the important interior spaces that characterize the building. These changes would significantly diminish the integrity of design, setting (though compromised), materials, workmanship, and feeling so that the building would

no longer convey its historic significance. The proposed project therefore would cause a substantial adverse change to the eligibility of Simson African Hall. This is considered a potentially significant unavoidable impact.

Section VI, Alternatives, identifies two preservation alternatives that would reduce impacts on historic resources at the CAS to a less-than-significant level; however, if one of these alternatives is not selected, the impacts to historic resources would be significant and unavoidable.

Project Impacts on the Music Concourse

Proposed construction of the new CAS would occur outside the proposed historical boundary of the Music Concourse Bowl and would not alter any historical character defining features of the resource. While the proposed project would change the setting of the vicinity, these changes would not be significant enough as to affect the integrity of the Music Concourse. The landscaped bowl would remain intact and unaffected by construction of the CAS facility, its potential eligibility unchanged by this project. The new building would observe relevant Secretary's Standards for the introduction of new structures in historic settings, which require that new construction be differentiated from the old and be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and environment. As a result, the proposed project would have a less-than-significant impact on the potential historic significance of the Music Concourse.

Project Impacts on the Proposed Golden Gate Park National Register District

The proposed CAS would introduce a new building into a potential historical landscape district. The new building would not disturb any contributing features to that district and would observe relevant Secretary's Standards for the introduction of new structures in historic settings, as described above, such that new construction would be differentiated from the old and would be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and environment. The proposed CAS would maintain important features of the Park and Music Concourse vicinity including topography, landscaping, circulation patterns, and structures. There are no historic monuments on the site.

Replacement with a new CAS building would maintain the integrity of location of the institution, which is the basis for its contribution to the proposed district, and would not diminish the integrity of the Music Concourse vicinity as discussed above. The project would have a less-than-significant impact on the proposed Golden Gate Park National Historic District.

Cumulative Impact Analysis

As discussed above, the proposed CAS would have no adverse effect on the Music Concourse or the potential Golden Gate Park Historic District. The EIRs and supporting technical reports for the New deYoung Museum and the GGPAC Projects reached similar conclusions, except for Phase II of the GGPAC Project (Underground Through Road), which would eliminate portions of the Rhododendron Dell, an historic resource individually eligible for listing in the *California Register*. Phase II is currently an unfunded component. If implemented in the future, it would create a project-specific, and not cumulative, impact of the GGPAC Projects, and the CAS project therefore would not contribute to this impact. When viewed together, all three proposed or approved projects in the Park would be generally compatible with the existing Park landscape in location, size, scale, and materials. They would avoid altering important Park landscape features such as the overall spatial configuration, and maintain the important cultural uses of the Music Concourse precinct. The individual compatibility of each project and the continuity of use in the valley suggests that the cumulative impact of the all three proposed or approved projects would not be substantial enough to adversely impact the historic significance of Golden Gate Park or the Music Concourse. Even if there were other significant impacts associated with the GGPAC Projects, because the CAS project would be consistent with the historic context, it would not contribute considerably to any such impacts. As a result, the proposed CAS would have a less-than-significant cumulative impact on the historic significance of the Music Concourse and the potential Golden Gate Park National Historic District.

VISUAL QUALITY (P. 123)

The Initial Study determined that visual quality effects of the proposed project would not generate significant obtrusive light or glare that could substantially impact other properties.

The overall visual character of Golden Gate Park varies from place to place as the Park includes many diverse bodies of water, landscapes, and buildings of varying ages and styles. The historical landscape character of Golden Gate Park is primarily pastoral and naturalistic; however, the Park also includes a series of formal, organized spaces such as the Music Concourse. The Music Concourse is characterized by a symmetrical, oval plan, regularly spaced trees, seating and other landscape improvements such as fountains, approximately 10 feet below the grade of Academy Drive. The Music Concourse is surrounded by naturalistic parkland, including trees and vegetation, outside the Concourse area.

The proposed project, with a smaller overall footprint and a roof height approximately 13 feet higher than the existing building (set back about 150 feet from the roof edge) would not substantially change the visual characteristics of the site and setting, such as the building's orientation on the site and to the Music Concourse, the landscape character, or the pedestrian paths and circulation routes. The vegetated and undulating roof with trellised overhangs would be the most apparent visual change. The green and naturalistic form is intended to relate to the surrounding parkland and could be seen as an extension of 'open space' in the Park. The new CAS would be located about 105 feet to the east of Shakespeare Garden; an increase in building setback from this recreational feature of the Park by an additional 91 feet, compared to the existing CAS. This would be considered a beneficial visual effect of the new CAS. The proposed loading dock of the new CAS would be about 20 feet from the edge of Shakespeare Garden. Due to the below-grade configuration of the loading docks and existing and proposed landscaping, this area would be generally screened from view and would not have a significant visual effect on Shakespeare Garden.

The new CAS would be compatible in scale and location with the existing facility. The project would not substantially change the pastoral character of landscape along Middle Drive East, King Drive, or Kennedy Drive. Views of the existing Academy would be replaced with views of the proposed project. The change in views would not substantially degrade or obstruct scenic views from public open space or plaza areas within Golden Gate Park and would be consistent with elements of the *Golden Gate Park Master Plan* including the Park Landscape Element as they relate to visual quality. The proposed CAS would not block southerly views of Mt. Sutro or Sutro Tower. From the deYoung Museum, the Academy would continue to

be screened by trees and other landscaping in the Concourse. The proposed structure would have an overall scale, massing and continuous frontage along the Music Concourse similar to the existing facility. While the architectural character of the proposed Academy would differ from that of the existing Academy, the overall height, scale and massing of the new structure would not result in a negative aesthetic effect on the visual character of the surrounding area. As such, the proposed project would not have a significant adverse effect on visual quality.

AIR QUALITY (P. 140)

Land uses in the vicinity of Golden Gate Park include residential, office, commercial, and institutional uses. Existing air emissions from the CAS are generated by stationary sources, such as heating, ventilation, and air-conditioning (HVAC) equipment; landscape maintenance equipment; and motor vehicle trips. Motor vehicles are the primary source of air pollutant emissions associated with the CAS and the primary source of pollutants in the Park.

Construction activities would generate airborne dust that could adversely affect the surrounding area. The principal pollutant of concern would be PM₁₀. Because dust control measures would be implemented in accordance with standard City practice, construction activities associated with the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. This is a less-than-significant impact. Construction activities associated with the CAS could also generate airborne odors associated with the operation of construction vehicles and the application of architectural coatings, however, these emissions would occur during daytime hours only and would be isolated to the immediate vicinity of the construction sites and activity and would not affect a substantial number of people or cause a significant impact.

When completed, attendance is expected to increase at the new CAS. The daily emissions of air pollutants would also increase due to the increased number of motor vehicles used by the visitors to the facility. The net increase in daily operational emissions of ROG, NO_x or PM₁₀ has been calculated using the URBEMIS 2001 emissions model and the traffic volumes predicted for the project in the *New California Academy of Sciences Transportation Study*. The model determined that the net increase in daily operational emissions of ROG, NO_x or

PM_{10} would range from 9.2 lbs to 20.3 lbs, and would not exceed the thresholds of 80 lbs. for each of these source elements.

Maximum existing CO concentrations were calculated for the intersections evaluated in the *New California Academy of Sciences Transportation Study* that operate at level of service (LOS) D, E, or F based on a simplified CALINE4 screening procedure developed by the BAAQMD and presented in its *CEQA Guidelines*. Under worst-case conditions, existing CO concentrations near all of the study area intersections would not exceed national or State 1-hour and 8-hour ambient CO standards.

Cumulative increases CO concentrations near these same intersections from the CAS and the GPCA Projects would not exceed the national 35.0 ppm and State 20.0 ppm 1-hour ambient air quality standards or the national 9.0 ppm and State 9.0 ppm 8-hour ambient air quality standards. Therefore, sensitive receptors located in close proximity to these intersections would not be exposed to substantial pollutant concentrations, and the potential impacts of the CAS and the GPCA Projects would be less than significant.

SHADOW (P. 152)

City Planning Code Section 295 contains criteria for evaluating net new shadow impacts on open space within the jurisdiction of the Recreation and Parks Commission. The CAS site is under the exclusive management and control of the CAS Board of Trustees under the City Charter, and may be exempt from Section 295. In addition, Section 295 contains an exclusion for recreation and park-related uses within Recreation and Park property, including Golden Gate Park, and that exclusion may pertain to the project. However, for purposes of analysis, the EIR assumes that the criteria of Section 295 apply. No formal criteria for the significance of new shadow in Golden Gate Park have been adopted. Shadow effects of the new CAS is described herein for analyzing the physical environmental effects of the shadow conditions.

Overall, the new building would add shade to new and existing landscaped areas within the CAS site, such as the entrance area, and areas immediately adjacent, such as Academy Drive, and the service road along the northeastern side of the building. Similar shadows are cast by the existing 40-foot-high building on the project site. Most new shading would occur during

late fall and winter months, when shading conditions and use of the area would also be affected by rainy season conditions. The new roof overhang would shade a portion of the lawn area northeast of the Academy at 3 PM in December. Over the course of a year, the building would shade parts of this area for about one hour, from 3 PM to 4 PM in the afternoon from mid-November to late January. This does not account for existing shade at those times from tree cover adjacent to the lawn; that is, there would already be existing shade in some of those areas shaded by the project. The new roof would also add new shade to portions of the northwest entrance area and Academy Drive during most mornings and early afternoons throughout the year. These intermittent effects would not affect use or enjoyment of these areas of the Park. Because the new CAS would be shifted away (to the east) from the Shakespeare Garden, shadow effects on the Garden would be reduced, especially during morning hours, and would increase enjoyment of that portion of the park. For these reasons, project shadow effects would not be considered a significant adverse environmental impact.

GROWTH INDUCEMENT (P. 163)

During construction activities, about 300 Academy Staff would be temporarily relocated to the transition facility at 875 Howard Street in downtown San Francisco. Certain Academy functions and collections would also be temporarily relocated to this transition facility. The Academy anticipates that approximately 285,000 visitors per year out of 800,000 visitors that currently attend the existing CAS would shift to the downtown transition facility. As a result of the projected temporary reduction in Academy employees and visitors, no growth inducement during the transition period is expected. Localized growth in employment and visitation would be expected at the transition facility during CAS relocation period, as this facility is currently vacant, but this increase would be temporary and within ABAG projections for growth in downtown San Francisco. In addition, this projected increase in localized employment and visitation would be small in the context of total employment and visitation in San Francisco. Therefore, localized growth inducement is not considered significant.

When the CAS facility in Golden Gate Park is completed, it would not add a significant number of employees to San Francisco's economy. The number of Academy's scientific professional, operations and educational employees is not expected to increase substantially.

When the Academy reopens, it is anticipated that the number of employees would increase by approximately 20, representing an increase of approximately five percent. The number of volunteers vary, but may range from about 60 to 100 during peak periods. This amount is anticipated to be about 80 to 120 during peak periods at the new facility. It is not anticipated that any future expansion would require significant additional staffing, since the additional space would be used primarily for collections, although minimal additional volunteers might be added, bringing the total from about 120 to up to 150. Overall, the Academy may add up to approximately 70 employees at full buildout including collection growth space. This potential increase in employment would be small in the context of total employment in San Francisco.

The project sponsor has estimated an average annual attendance of 1,400,000 visitors with the new facility, which would represent a net-new attendance of about 600,000 visitors over the existing visitorship levels. Increased attendance would not likely result in growth inducement, as attendance is projected to approach levels that existed historically, when attendance of the CAS was at its peak in 1970's.

The project would be built in a developed area within Golden Gate Park, and no expansion of municipal infrastructure not already under consideration would be required to serve the project. This infrastructure currently includes a saltwater conveyance and discharge system. The new CAS facility would not require increased capacity and should result in decreased loads due to enhanced efficiencies of new systems. Therefore, the proposed project would be not considered growth inducing.

C. MITIGATION MEASURES (P. 166)

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the project. Some of these measures have been, or would be, adopted by the project sponsor and, therefore, are proposed as part of the project; some are under consideration. Implementation of some measures may be the responsibility of public agencies.

Each mitigation measure and its status is discussed below. Measures from the Initial Study (see Appendix A, p. A.1) proposed as part of the project are indicated with an asterisk (*) and follow mitigation measures of topics discussed in the EIR. Mitigation measures identified in this EIR and in the Initial Study would be required by decision makers as conditions of project approval unless they are demonstrated to be infeasible based on substantial evidence in the record.

TRANSPORTATION

Mitigation Measures as Part of the Proposed Project

Year 2015 Cumulative Conditions

1. Under the 2015 Cumulative scenarios with and without the Underground Parking Facility, the CAS would have a significant contribution to unacceptable level of service conditions at the intersection of Fulton/Stanyan during the Saturday and Sunday midday peak hour. The Project Sponsor would work with the Department of Parking and Traffic (DPT), Recreation and Park Department, Department of Public Works, and/or the Planning Department to improve the 2015 Cumulative intersection operations to acceptable conditions.
 - **Fulton/Stanyan (Saturday and Sunday midday, With and Without and Underground Parking Facility):** Restripe the southbound approach to convert the right-turn only lane to a through-right lane, prohibit eastbound and westbound left-turns during Saturday and Sunday midday periods (similarly to what already occurs during the weekday PM peak period) and retime the signal. It should be noted that the restriping of the southbound approach would require the elimination of on-street parking along the west side of Stanyan Street to the south of the intersection. It is anticipated that left-turn prohibition would be in effect seven days of the week, between 7:00 AM and 7:00 PM. In addition, it is anticipated that the parking restriction on Stanyan Street would be between Fulton and Fell Streets, and would be in effect seven days of the week, between 7:00 AM and 7:00 PM. With this measure, the intersection operations would improve to LOS D during the Saturday midday and Sunday midday peak hours for both future scenarios.

These proposed changes to the Fulton/Stanyan intersection might result in secondary effects to other nearby intersections. With the prohibition of left-turns from eastbound and westbound Fulton Street, left-turning traffic would need to use other north/south streets, such as Arguello Boulevard, Masonic Avenue, or local residential streets such as Parker Street. Based on the 2015 Cumulative traffic volumes, it is estimated that less than 30 vehicles would need to reroute to the eastbound and westbound directions during the Saturday midday and Sunday midday peak hours. Although the rerouted

traffic may result in somewhat higher delays per vehicle at these other intersections, they are not anticipated to substantially affect those intersection operating conditions or result in increased congestion.

Intersections with Less-Than-Significant Project Contributions for which Mitigation Measures can be Developed

The following mitigation measures have been developed to improve the 2015 Cumulative intersection operations to acceptable conditions. The proposed new CAS would not be considered to have a significant contribution to cumulative conditions at these intersections. As such, the CAS would not be required to contribute to the implementation of these measures.

- **Park Presidio/Fulton (Saturday midday, Sunday midday):** Retime the intersection signal to increase the cycle length (from 85 to 90 seconds) and increase the proportion of green time provided to Park Presidio Boulevard. With this measure, the intersection operations would improve to LOS D during both the Saturday midday and Sunday midday peak hours. It should be noted that signal timing changes are not typically considered mitigation measures, as they are anticipated to occur through DPT's continuing intersection monitoring program. However, the signal at this intersection is coordinated with the other signals along Park Presidio Boulevard to ensure coordinated traffic flow in both the northbound and southbound directions. As a result, a corridor study may need to be performed along Park Presidio Boulevard to determine if the proposed signal timing changes and increase in cycle length would be possible.
- **Fulton/Arguello (Sunday midday):** Retime the intersection to increase the cycle length (from 60 to 75 seconds) and increase the proportion of the green time provided to Fulton Street. With this measure, the intersection operations would improve to LOS D.

Improvement Measures as Part of the Project

Construction

2. Any construction traffic occurring between 7:00 and 9:00 AM or between 3:30 and 6:00 PM on weekdays would coincide with peak commute traffic and could temporarily impede traffic and transit flow. However, since the project site is located within Golden Gate Park, the potential disruption to commute traffic would be minimal. Conversely, construction activities that may occur on weekends could affect the recreational streets adjacent to the project site. As such, construction activities on weekends should be limited, if possible.

The Project Sponsor and construction contractor(s) shall meet with the Traffic Engineering Division of the Department of Parking and Traffic (DPT), the Recreation

and Park Department, the Fire Department, MUNI and the Planning Department to determine feasible traffic mitigation measures to reduce any traffic congestion, transit disruption and pedestrian circulation impacts during construction of the CAS. The temporary parking demand by construction workers would need to be met on-site or within other off-site parking facilities. The contractor would need to determine the location of an off-site parking facility for construction workers during the construction period if adequate on-street parking was not available.

Since construction of the CAS may overlap with construction of the New deYoung and the construction of the planned Underground Parking Facility, the construction contractor(s) for each project shall coordinate their construction schedules and activities to avoid conflicts. In addition, it may be possible to coordinate deliveries and hauling between the projects to minimize the number of trucks destined to and from the projects site each day. Furthermore, it may be possible to share construction worker parking locations, either off-site or within the Underground Parking Facility after its construction.

The construction contractor for each project should work with the various City departments (including the Planning Department, the Recreation and Park Department, MUNI, DPT and DPW) to develop a detailed and coordinating plan to address construction vehicle routing, traffic control, pedestrian walks and transit stop relocation.

Parking

3. Although the parking demand generated by the CAS would not be expected to result in significant environmental impacts, the following improvement measures have been developed to reduce the parking demand associated with CAS visitors and employees and to reduce potential secondary parking effects. These improvement measures may include: (1) participating in the Commuter Check Program, or a similar program, to encourage transit use by employees, (2) contributing financially to the current Intra-Park shuttle pilot program, (3) promoting the current Intra-Park shuttle in the CAS promotional material and membership mailing, (4) supporting the establishment of congestion bypass lanes for MUNI and shuttle vehicles within the Park, (5) providing admission discounts for visitors who use the Intra-Park pilot shuttle, or, (6) provide parking validations of visitors parking in remote facilities, such as the UCSF garage.

HISTORIC RESOURCES

The proposed project would demolish the Steinhart Aquarium and Science Hall/Morrison Planetarium, both of which are potentially eligible for listing in the *California Register of Historic Resources*. Demolition would alter in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the *California Register of Historical Resources*. The proposed

project would retain most of Simson African Hall, also potentially eligible listing in the *California Register*; however, it would cause a substantial adverse change to the eligibility of the structure. These project effects are considered potentially significant impacts to historic resources under CEQA.

Mitigation Measures Proposed as Part of the Project

4. Detailed recordation of significant CAS buildings prior to their demolition would partially mitigate the loss of the three potentially historic buildings. Recordation may provide important historical information that would further minimize the loss of historical resources and features. Research indicates a wealth of information including drawings and plans exist that may be documented and archived. Documentation of the existing buildings would be considered for both reconstruction and archival purposes. Recordation of the affected properties shall be in accordance with the National Park Services' guidelines for preparing a Historic American Building Survey (HABS). Implementation of this mitigation measure would reduce the impact to historic resources, but not to a less-than-significant level. The loss of historically significant CAS buildings would be a significant and unavoidable impact. Significant impacts to historical resources could only be reduced to a less-than-significant level by selection of a project alternative (see Chapter VI, Alternatives, No-Project Alternative A or Preservation Alternatives B and C).

VISUAL RESOURCES

Improvement Measures Proposed as Part of the Project

5. The project sponsor shall provide as part of its subsequent project plans submittals, a detailed grading, excavation, tree protection, and landscaping plan which further demonstrates, to the satisfaction of the Recreation and Park Department, that construction activities will retain the important landscape elements, including where feasible important mature trees.

AIR QUALITY

Mitigation Measures Proposed as Part of the Project

6. The project sponsor would require the contractor(s) to spray the site with water during excavation and construction activities; spray unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other material; cover trucks hauling debris, soil, sand or other such material; and sweep surrounding streets during excavation and construction at least once per day to reduce particulate emissions.

In addition to the above-mentioned measures, the following mitigation measures recommended by the BAAQMD would further reduce construction-related PM10 emissions:

- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
 - Limit traffic speeds on unpaved roads to 15 miles per hour.
 - Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
 - Replant vegetation in disturbed areas as quickly as possible.
 - Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the construction site.
 - Install wind breaks at the windward sides of the construction areas
 - Suspend excavation and grading activities when wind (as instantaneous gusts) exceeds 25 miles per hour.
7. Ordinance 175-91, passed by the Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities. Therefore, the project sponsor would require that the contractor(s) obtain reclaimed water from the Clean Water Program for this purpose. The project sponsor would require the project contractor(s) to maintain and operate construction equipment so as to minimize exhaust emissions of particulate and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions from equipment that would be in frequent use for much of the construction period.

NOISE

Mitigation Measures Proposed as Part of the Project

8. The project sponsor would require project construction contractor(s) to predrill holes to the maximum depth feasible on the basis of soil conditions. Contractors would be required to use construction equipment with state-of-the-art noise shielding and muffling devices. If pile driving is required, the project sponsor would also require that contractors limit pile driving activity to result in the least disturbance to neighbors, as determined by the Department of Building Inspection.

GEOLOGY / TOPOGRAPHY

Mitigation Measures Proposed as Part of the Project

9. One or more geotechnical investigations by a California-licensed geotechnical engineer are included as part of the project. The project sponsor and its contractors would follow the recommendations of the final geotechnical reports regarding any excavation and construction for the project. The project sponsor would ensure that the construction contractor conducts a pre-construction survey of existing conditions and monitors the adjacent buildings for damage during construction, if recommended by the geotechnical engineer.
10. If dewatering were necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based on this discussion, the soils report would determine whether or not a lateral movement and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey were recommended, the Department of Building Inspection would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable movement were to occur during construction, groundwater recharge would be used to halt this settlement. The project sponsor would delay construction if necessary. Costs for the survey and any necessary repairs to service lines under the street would be born by the project sponsor.

If dewatering were necessary, the project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding dewatering to avoid settlement of adjacent streets, utilities, and buildings that could potentially occur as a result of dewatering.

11. The project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding installation of settlement markers around the perimeter of shoring to monitor any ground movements outside of the shoring itself. Shoring systems would be modified as necessary in the event that substantial movements are detected.

WATER QUALITY

Mitigation Measures Proposed as Part of the Project

12. If dewatering were necessary, the project sponsor would follow the recommendations of the geotechnical engineer or environmental remediation consultant, in consultation with the Bureau of Environmental Regulation and Management of the Department of Public Works, regarding treatment, if any, of pumped groundwater prior to discharge to the combined sewer system.

If dewatering were necessary, groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this were found to be necessary by the Bureau of Environmental Regulation and Management of the Department of Public Works to reduce the amount of sediment entering the combined sewer system.

13. The project sponsor would require the general contractor to install and maintain sediment traps in local storm water intakes during construction to reduce the amount of sediment entering the combined sewer system, if this were found to be necessary by the Bureau of Environmental Regulation and Management of the Department of Public Works.

HAZARDS/HAZARDOUS MATERIALS

Mitigation Measures Proposed as Part of the Project

Mitigation measures for hazardous materials identified in the Initial Study, pp. 22-25, have been updated with the following measures based upon the results of a Phase II investigation.

14. A Phase II Environmental Site Assessment (ESA) prepared by Iris Environmental determined there were elevated levels of arsenic within anticipated ranges in dust samples collected in the dry collections room of the CAS. These concentration levels indicate that extra care should be taken during removal of specimens from the dry collection rooms, and in preparing these rooms for demolition. Activities to limit personnel exposure to arsenic dust would include the following:
 - Employees and/or contractors moving the specimens shall receive the minimum arsenic awareness training, protection, and monitoring duties in accordance with Cal-OSHA inorganic arsenic rules.
 - Once the specimens have been removed from the dry collection rooms, the rooms shall be thoroughly cleaned using a HEPA-type vacuum cleaner, also in accordance with Cal-OSHA inorganic arsenic rules.

No other special precautions or further remediation would be necessary during demolition of the dry collection rooms if these measures are implemented.

ARCHAEOLOGICAL RESOURCES

Mitigation Measures Proposed as Part of the Project

15. Mitigation measures for archaeological resources identified in the Initial Study, pp. 25-27, have been updated with the following measures.

Based on the reasonable potential that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical

resources. The project sponsor shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology. The archeological consultant shall undertake an archeological monitoring program. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

Archeological monitoring program (AMP). The archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the AMP reasonably prior to any project-related soils disturbing activities commencing. The ERO in consultation with the project archeologist shall determine what project activities shall be archeologically monitored. In most cases, any soils disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the potential risk these activities pose to archaeological resources and to their depositional context;
- The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archaeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with the archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction crews and heavy equipment until the deposit is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation

with the ERO. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, present the findings of this assessment to the ERO.

If the ERO in consultation with the archeological consultant determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either:

- A. The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- B. An archeological data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

If an archeological data recovery program is required by the ERO, the archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The project archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP. The archeological consultant shall prepare a draft ADRP that shall be submitted to the ERO for review and approval. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations.
- *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures.
- *Discard and Deaccession Policy.* Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program.* Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures.* Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.

- *Final Report.* Description of proposed report format and distribution of results.
- *Curation.* Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains, Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects.

Final Archeological Resources Report. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the draft final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Major Environmental Analysis division of the Planning Department shall receive three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

D. ALTERNATIVES (P. 179)

ALTERNATIVE A: NO PROJECT

The No-Project Alternative would entail no change to the site. The proposed new CAS would not be built; all existing buildings, including the potentially historic Steinhart Aquarium,

Morrison Planetarium, and Simson African Hall, would remain on the site. No significant alterations to the interior or exterior spaces would occur, except as might be required for life safety compliance, such as seismic upgrades including additional bracing, foundation improvements, and revised column spacing. The overall space at the site would remain at about 350,000 sq. ft., compared to about 390,000 sq. ft. of total space with the proposed project. Attendance would remain at current levels or, more likely, continue the current trend of decline of recent years. Existing documented deficient structural, utilities, climate-control, seismic, security and conditions would remain; however, life safety upgrades would be made as necessary for continuing occupancy of the CAS. In turn, life safety upgrades would likely trigger other code upgrades, such as accessibility requirements, including ADA-accessible ramps and elevators.

If the project did not proceed, the impacts associated with the proposed project would not occur. The environmental characteristics of this alternative would be generally as described in the Setting sections of Chapter III of this EIR. This Alternative has been deemed the Environmentally Superior Alternative because it would not result in significant impacts to historic resources, and would reduce non-significant impacts of the project related to increased trip generation. However, this Alternative would not incorporate life safety, seismic and sustainability improvements proposed as part of the project.

PRESERVATION ALTERNATIVE B: FULL ACADEMY PROGRAM/INCREASED BUILDING HEIGHT

Preservation Alternative B would develop a new CAS building that would maintain and restore Simson African Hall, Steinhart Aquarium, and Science Hall/Morrison Planetarium. The remaining nine buildings associated with the CAS would be demolished. This alternative would preserve as many character defining features of the potentially historic buildings as possible, including significant facades, footprints, massing, circulation patterns, features, and spaces. Most of the full proposed program could be accommodated in the existing building footprint while reusing and maintaining the three potentially historic structures. However, to accommodate the full proposed program, including the 80,000 gsf collection growth space, it would be necessary to add approximately two more floors above the new RC&A building,

bringing the total height to 75 feet, approximately 40 feet above existing roof heights. Without the collections growth space, the new RC&A prevailing building height would be about 50 feet. The project program calls for the expansion space to be located below grade adjacent to Middle Drive East. This option would no longer be possible under Alternative B, as most of the proposed collections growth footprint would be taken up with a combination of the existing Steinhart Aquarium and the new RC&A building.

Alternative B would also include new high-bay exhibition space in an L-shaped structure to the west of the historically significant buildings, enclosing the courtyard, and within existing building heights of approximately 40 feet.

Significant, adverse impacts to potentially historic resources, including Simson African Hall, Steinhart Aquarium, and Science Hall/Morrison Planetarium are expected to be reduced to a less-than-significant level with implementation of Preservation Alternative B. All other impacts would likely be similar to the proposed project, given the similar size program, although the building would appear taller primarily from Middle Drive East as a result of the increase in height necessary to achieve Alternative B. Project contributions to the cumulative traffic impacts at the Fulton/Stanyan intersection would continue to be significant under this alternative. Alternative B would accomplish some of the Academy's project objectives, while eliminating or compromising others.

PRESERVATION ALTERNATIVE C: REDUCED DEVELOPMENT PROGRAM/HEIGHTS MAINTAINED

This Alternative is similar to Alternative B, in terms of preservation of the three potentially historic buildings, but would maintain the existing building heights of approximately 40 feet. This would result in a reduction (approximately 40,000 gsf) in the base RC&A building (approximately 10 percent of the proposed program, or about one-quarter of the total RC&A space), plus the proposed 80,000 gsf collection growth space, for a total reduction of about 120,000 gsf, about one-quarter of the total CAS program.

As with Alternative B, this alternative would also reduce the potential impacts to historic resources associated with the proposed project to a less-than-significant level. This alternative

would appear slightly more visually compatible with the historic and visual setting of the existing Academy buildings and adjacent historic resources such as the Music Concourse than Alternative B, due to a height that is similar to the proposed and existing building, would not extend approximately 40 feet above the existing roofline. All other impacts would likely be similar to the proposed project, given the similar size program, although reduced by about 10 percent without the collections growth space, or about 25 percent with it. Project contributions to the cumulative traffic impacts at the Fulton/Stanyan intersection would likely continue to be significant under this alternative. Similar to Alternative B, Alternative C would accomplish some of the Academy's project objectives, while eliminating or compromising others.

ALTERNATIVES CONSIDERED AND REJECTED

No alternative sites have been identified within San Francisco where the project could be constructed feasibly and consistent with the project sponsor's objectives. The Academy has a long history in Golden Gate Park, with the first structure (North American Hall) opening to the public in 1916. Under the San Francisco Charter, the facility is located on public property, without land cost to the Academy. Moreover, the Academy's location and role in Golden Gate Park is recognized under various City Codes, documents and plans, including the San Francisco General Plan and Golden Gate Park Master Plan. The presence of the cultural institutions is a contributing element to the Park's and its proposed historic status. Finally, the Academy requires a setting that is conducive to creating interest in and providing opportunities for interacting with the natural world, which the Park provides.

As part of the new Academy project, the Academy studied a number of options, including alternative locations outside of Golden Gate Park. Specifically, the Academy considered relocating the Aquarium, Planetarium and Natural History galleries downtown in a new public museum, with the research component and associated facilities remaining in the Park. This division was established due to the prohibitively high cost of building new square footage downtown. The off-site location was ultimately rejected due to its high cost, undesirable separation of research functions, redundancy of certain facilities, public support for the current location, and inconsistency with many of the project sponsor's objectives.

Other variants on Alternative B were considered in lieu of increased building height, but were not further analyzed due to increased conflicts with project objectives and other feasibility issues as compared to the increased height approach. Any Preservation Alternative that retained the proposed program would necessitate an increased height and bulk and therefore would be substantially similar to Alternative B in its impacts.

E. AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

Preparation of the EIR identified the following areas of controversy or unresolved issues regarding the proposed CAS, which are addressed in this document:

- Project effects on circulation and parking conditions in the Park and vicinity;
- Project effects on historic character of the existing CAS, the Music Concourse and the Park as a whole; and
- Cumulative effects of the CAS, the GGPAC Projects, and the New de Young Museum on circulation, parking, historic resources, and construction period overlap.

II. PROJECT DESCRIPTION

The California Academy of Sciences (referred to as the CAS or the Academy in this EIR) proposes to build a new CAS on the site of the existing facility in Golden Gate Park. The project would demolish 11 of 12 existing buildings while retaining and rehabilitating Simson Africa Hall in place. The main features of the new Academy facility would be the main lobby and courtyard, public education and new exhibit spaces (including an aquarium, planetarium, and rainforest areas), natural history museum, environmental resource center, auditorium, classrooms, laboratories, research, collections, and administration space, restaurant and lunch room areas, a loading dock and other museum-related uses, all in one structure. It would also include approximately 15 service and Academy vehicle spaces on-site. The building would include three levels above grade and two levels below grade. The building would have a landscaped roof with a base height under 40 feet. Above the base, the landscaped roof would undulate to accommodate the Academy's major programmatic components beneath, with the two peak elements over the planetarium and rainforest exhibits reaching a height of about 67 feet. The floor area would increase from approximately 350,000 sq. ft. to approximately 390,000 sq. ft. Overall, the new Academy would increase the floor area of the museum's functions on a smaller footprint than the existing facility (from approximately 240,000 sq. ft. to approximately 205,000 sq. ft.). This increase in area on a smaller footprint is possible primarily because the new plans significantly increase basement level area.

A. PROJECT OBJECTIVES

In 1995, the voters of San Francisco approved a \$29,245,000 bond measure (Proposition C) for improvements of the Steinhart Aquarium at the CAS. In 2000, the voters approved a second measure (Proposition B) of \$87,445,000 for improvement of the overall Academy facilities. In conjunction with the bond measures and subsequent program and design development, the Academy conducted outreach to its members, visitors and staff to assess their needs and interest. It also retained a team of consultants, including architects, engineers, scientists, environmental and Building Code experts and exhibit specialists, to further evaluate the existing facilities and design the new project, in coordination with other activities in the

Concourse area, generally the area surrounding the Music Concourse, and bounded by King Drive on the west, Middle Drive East to the south, and Kennedy Drive to the north. To guide this team, the Academy articulated as its overarching goal the following: Building a safe, modern facility for exhibition, education, conservation, research, exploration and explanation of the natural world. Three primary rebuilding “imperatives” emerged from this general goal:

- Address structural deficiencies to assure public safety and accessibility.
- Improve science literacy and bridge the international science knowledge gap of children and adults.
- Increase awareness of the biodiversity crisis occurring in the natural world by conducting vital scientific research and educating future generations of scientists and citizens who will inform the public policy debate.

These imperatives form the basis for the project sponsor’s programmatic objectives, described below:

- Provide a safe, functional and Code-compliant building for the public, staff, live exhibits, and collections by: abating hazardous materials; incorporating Code-compliant, museum-quality systems such as heating, ventilation, air conditioning, life safety and fire detection/suppression systems; addressing accessibility of public spaces and work areas; and providing modern, consolidated scientific work areas.
- Replace deteriorated buildings and infrastructure on the site with an efficient, multi-functional, facility that meets the Academy’s foreseeable program requirements and includes improved accommodations for the Academy’s exhibits.
- Incorporate architectural and building systems features that reflect the Academy’s core mission, including technological innovation and sustainability that will reduce the Academy’s long-term use of natural resources.
- Increase the facility’s educational capacity and restore its historic visitorship base so that it is comparable to the nation’s best institutions.
- Provide adequate means of access and transportation to the facility for a diverse patron base.
- Seek to provide a revised building reconfiguration that maintains or reduces encroachment on, and is compatible with, the Park, and maintain or reduces the existing Academy footprint.
- Provide exhibits that reflect, and are flexible enough to keep pace with, the changing nature of science and technology.

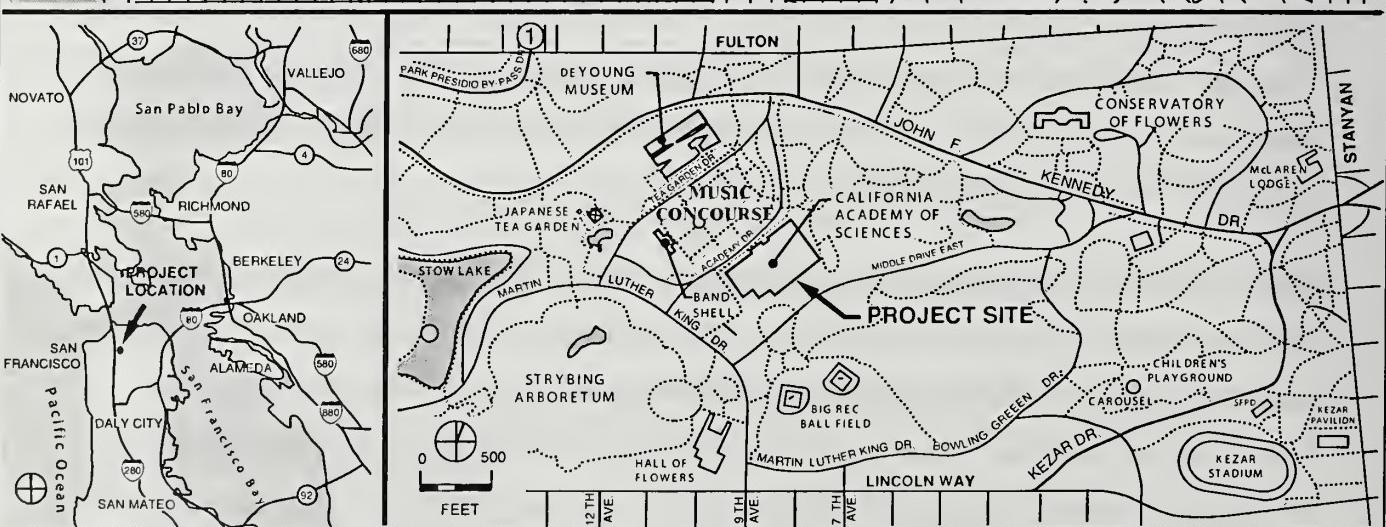
- Present complex scientific information in appealing, easily understood and creative formats to stimulate curiosity and assist people in making more informed decisions about the natural world, including by making “behind the scenes” science more accessible and viewable.
- Remove barriers to integration with the Park by features such as increasing use of transparent materials to improve views of the Park and incorporating landscaping adjacent to the building at Park level.

B. PROJECT LOCATION

The project site is on Academy Drive, on the south side of the Music Concourse in Golden Gate Park (see Figure 1). The project site is approximately 320,000 sq. ft. and is bordered on the north by the Music Concourse (across Academy Drive), on the southwest by the Shakespeare Garden, on the south by the Big Rec Ball Field (across Middle Drive East) and on the east by a meadow and woods within the Park, including the McLaren Rhododendron Dell.

The Music Concourse area is oriented northeast-southwest, as shown in Figure 1. By convention in this EIR, the CAS will be generally referred to as on the south side of the Concourse, and with other features as north-south and east-west. The Music Concourse is a formal open public space characterized by regularly spaced trees, seating and other landscape improvements approximately ten feet below the grade of Academy Drive and Tea Garden Drive. The site is within Lot 1 of Assessor's Block 1700, which includes all of the approximately 1,017-acre Golden Gate Park. The site is owned by the City and County of San Francisco. Golden Gate Park is under the jurisdiction of the San Francisco Recreation & Park Department. The Academy is managed and controlled exclusively by the Board of Trustees of the California Academy of Sciences.

Golden Gate Park and the project site is within a P (Public Use) zoning district, and within an OS (Open Space) Height and Bulk district. Permitted uses in a P zoning district include public structures of the city and other governmental agencies when in conformity with the *San Francisco General Plan*. There are no specific height and bulk limits in the OS height and bulk district. Height and bulk of buildings and structures are determined in accordance with the objectives and policies of the San Francisco General Plan.



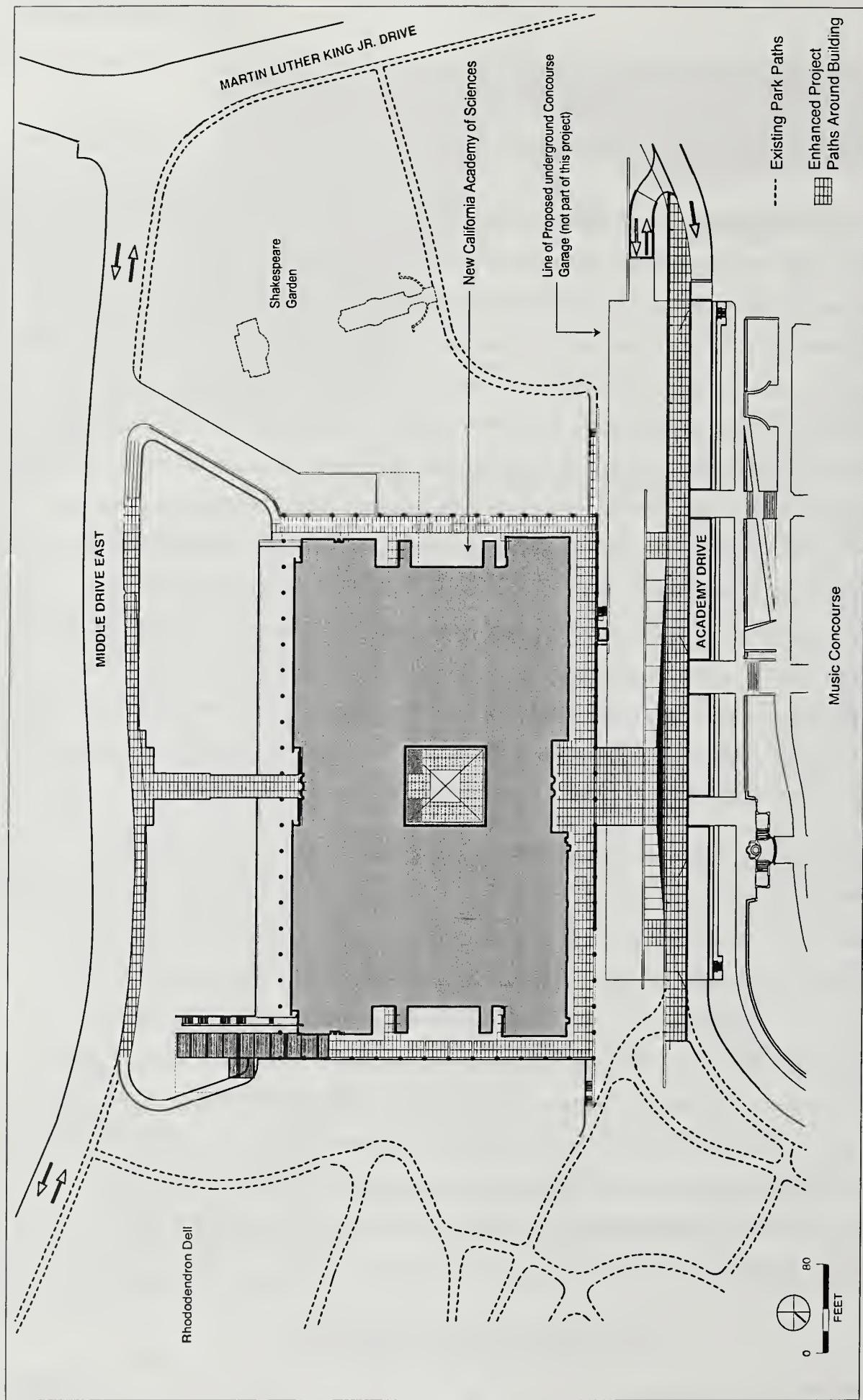
SOURCE: EIP Associates

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 1: PROJECT LOCATION

C. PROJECT CHARACTERISTICS

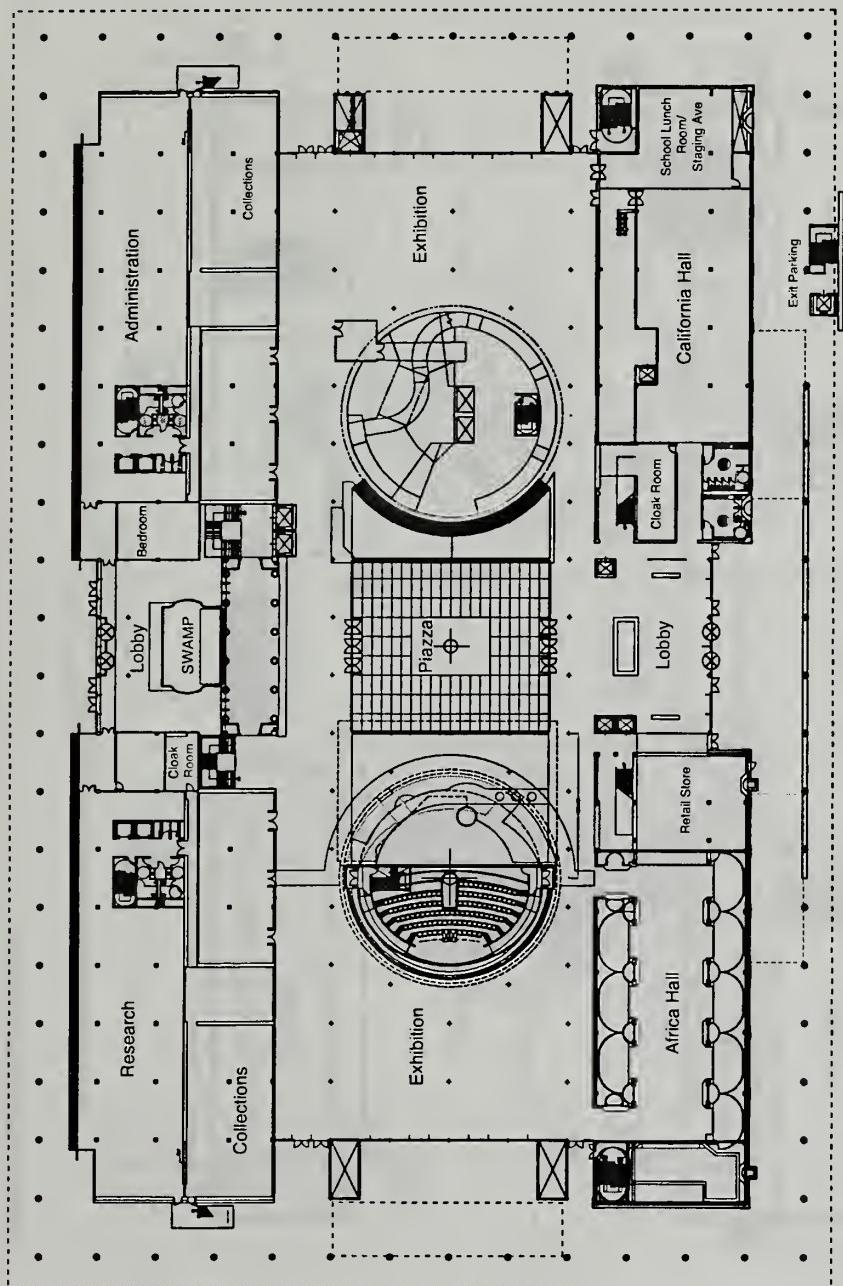
The new Academy would consist of three principal components organized around a central exhibition space and open piazza - all enclosed under a single roof. The facility would include three main levels above grade, two levels below grade beneath the research, collections, and administration (RC&A) portion of the CAS, and one level below grade beneath the remainder of the facility. A loading area would be at the southern portion of the project site. Simson Africa Hall, with some modifications, would be retained and integrated into the design, as described below. Figures 2 through 10 are schematic floor plans, sections and elevations of the proposed facility. The main features of the new Academy would be the main lobby and courtyard, public education and new exhibit spaces (including an aquarium, planetarium, and rainforest areas), natural history museum, environmental resource center, auditorium, classrooms, laboratories, research, collections, and administration space, restaurant and lunch room areas, a below-grade loading dock, approximately 15 service and Academy vehicle parallel parking spaces along the driveway to the loading dock area, and other museum-related uses. The below-grade loading docks would include the trash and recycling collection area. Collection trucks would enter this loading area to pick up trash and recyclables.

The facility has been designed to a high level of sustainability. The most recognizable “green” feature would be the planted roof, which would provide insulation (thereby reducing energy use), slow runoff, return runoff to the aquifer, significantly lessen the “urban heat island effect,” or tendency for large, paved surfaces to generate and reflect heat into the environment. It would also incorporate renewable building materials including glazed, transparent façades, roof sections and lighting controls designed to maximize use of natural daylight; provide solar controls, incorporated primarily in the roof, overhang and associated shading devices; feature a natural ventilation system, implemented largely through the roof design, operable windows and the configuration of the exhibit area; and would include reclaimed water and stormwater recharge systems. The facility is part of the City’s sustainability program.¹



CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 2: PROPOSED SITE PLAN

MIDDLE DRIVE EAST



ACADEMY DRIVE

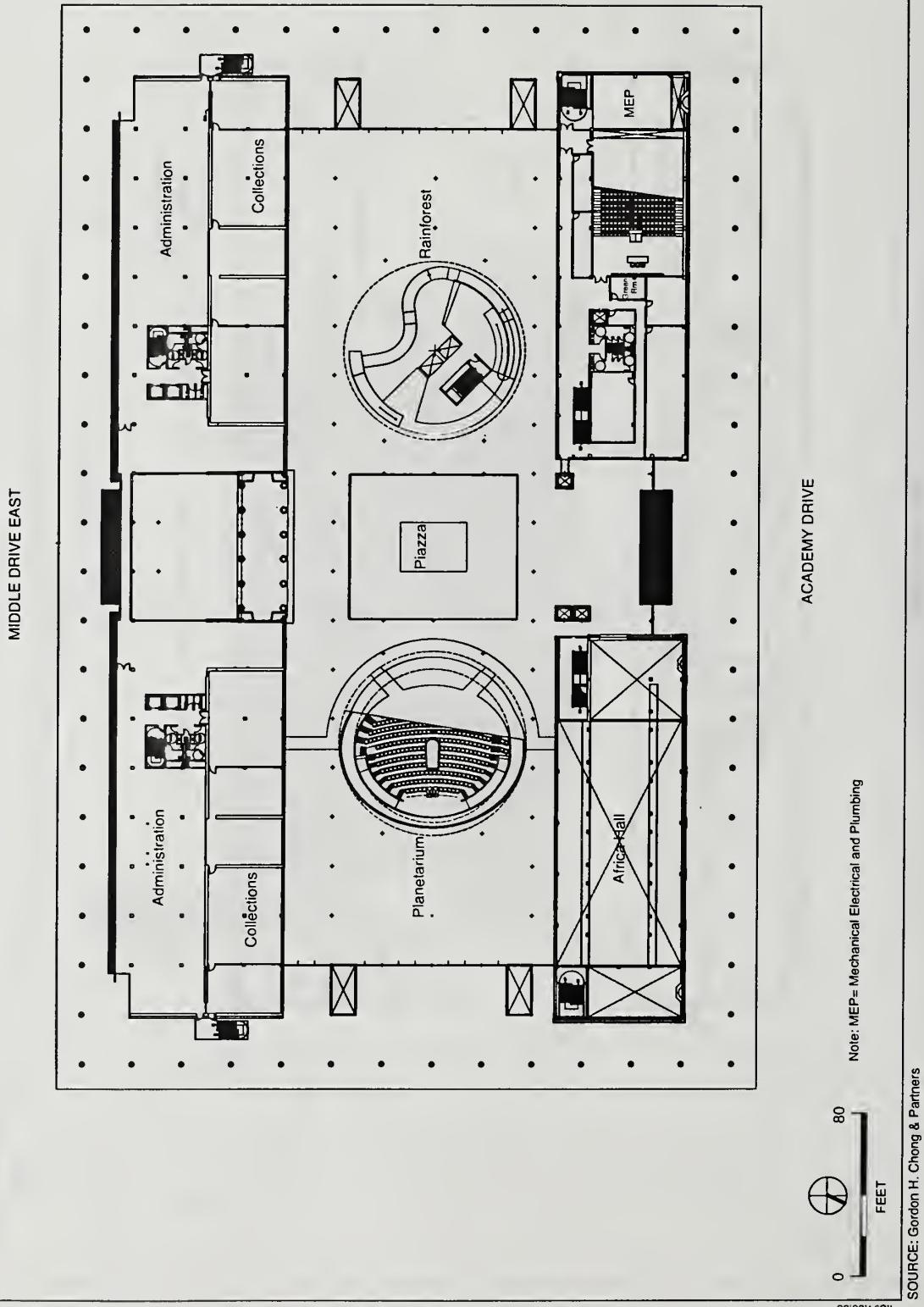


SOURCE: Gordon H. Chong & Partners

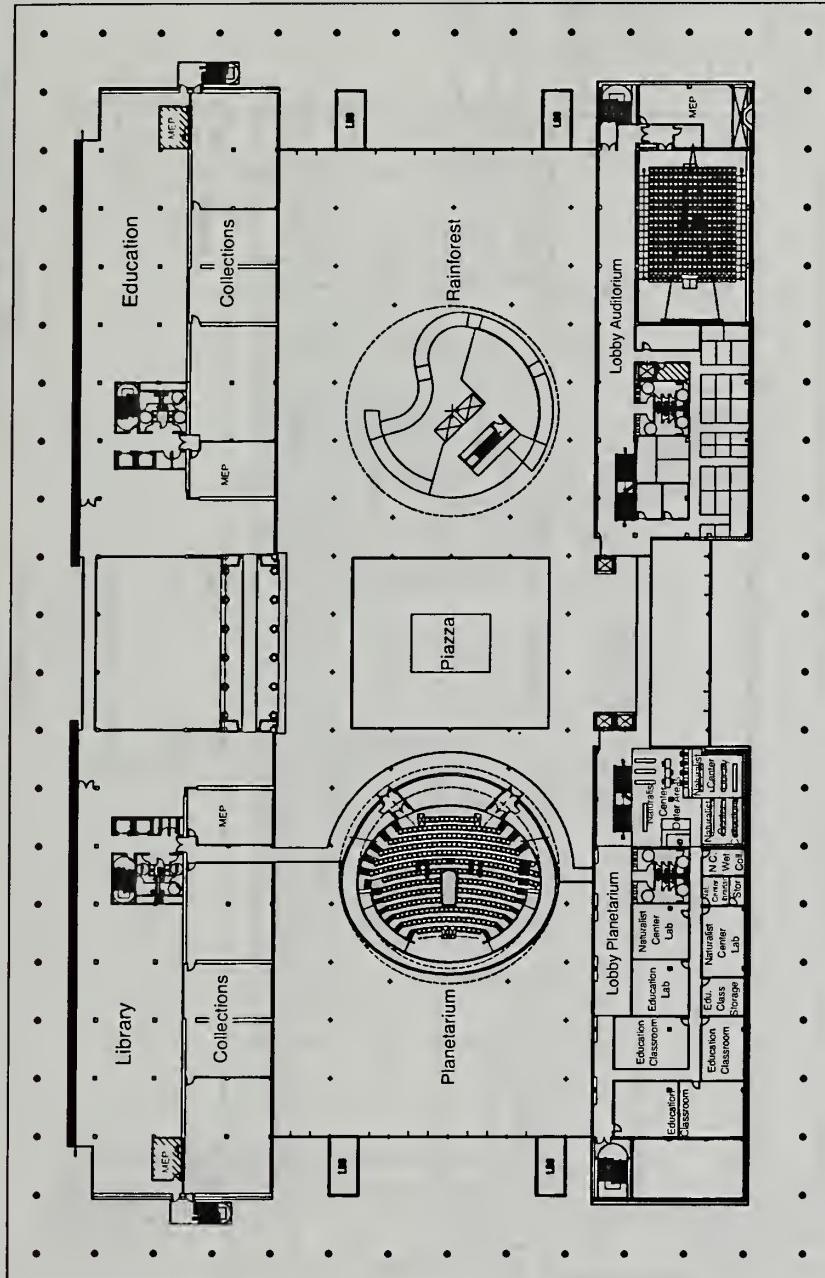
CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 3: FLOOR PLAN GROUND LEVEL LI

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CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 4: FLOOR PLAN UPPER LEVEL L2



MIDDLE DRIVE EAST



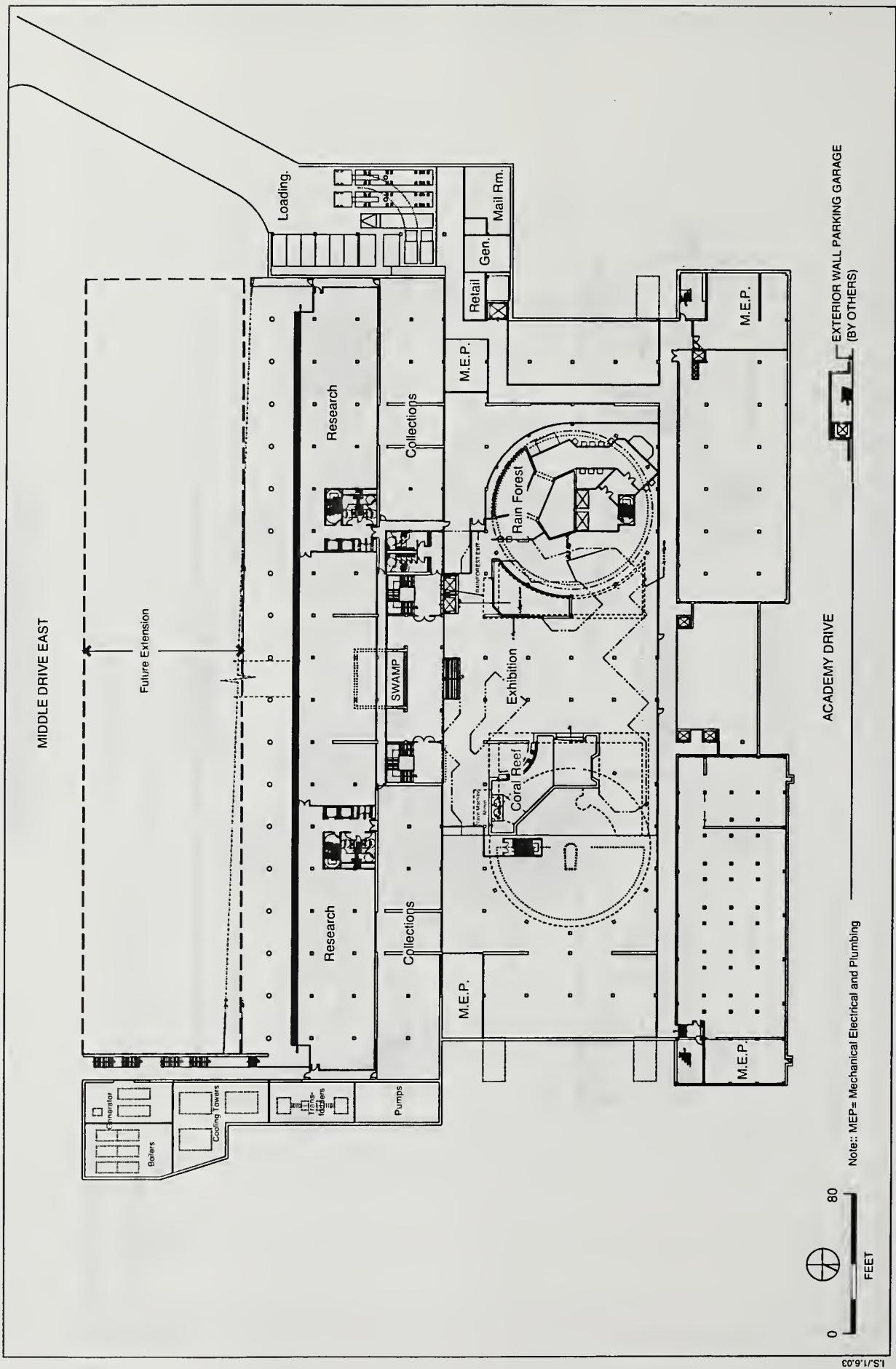
ACADEMY DRIVE



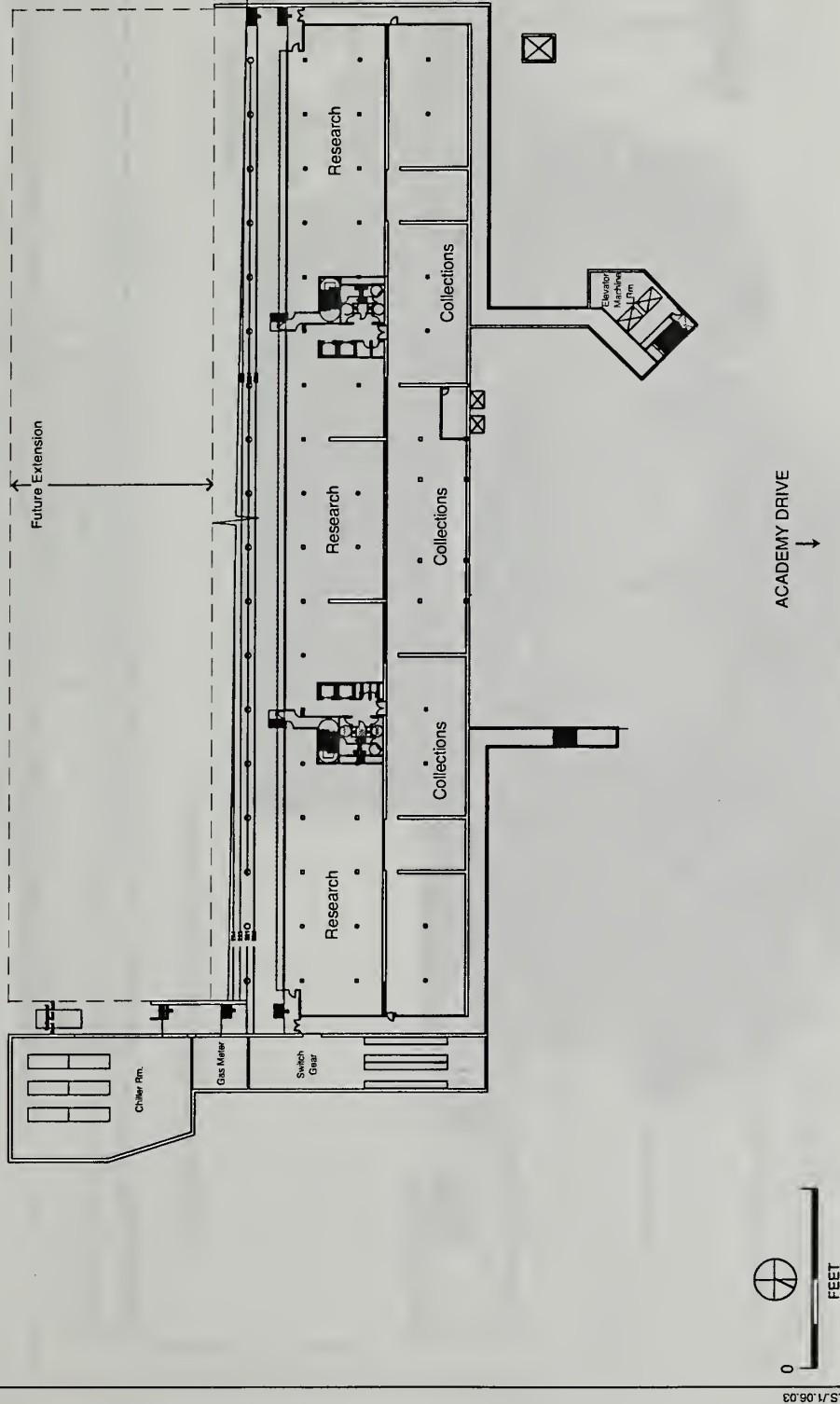
SOURCE: Gordon H. Chong & Partners

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 5: FLOOR PLAN UPPER LEVEL L3

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 6: FLOOR PLAN BASEMENT LEVEL B1

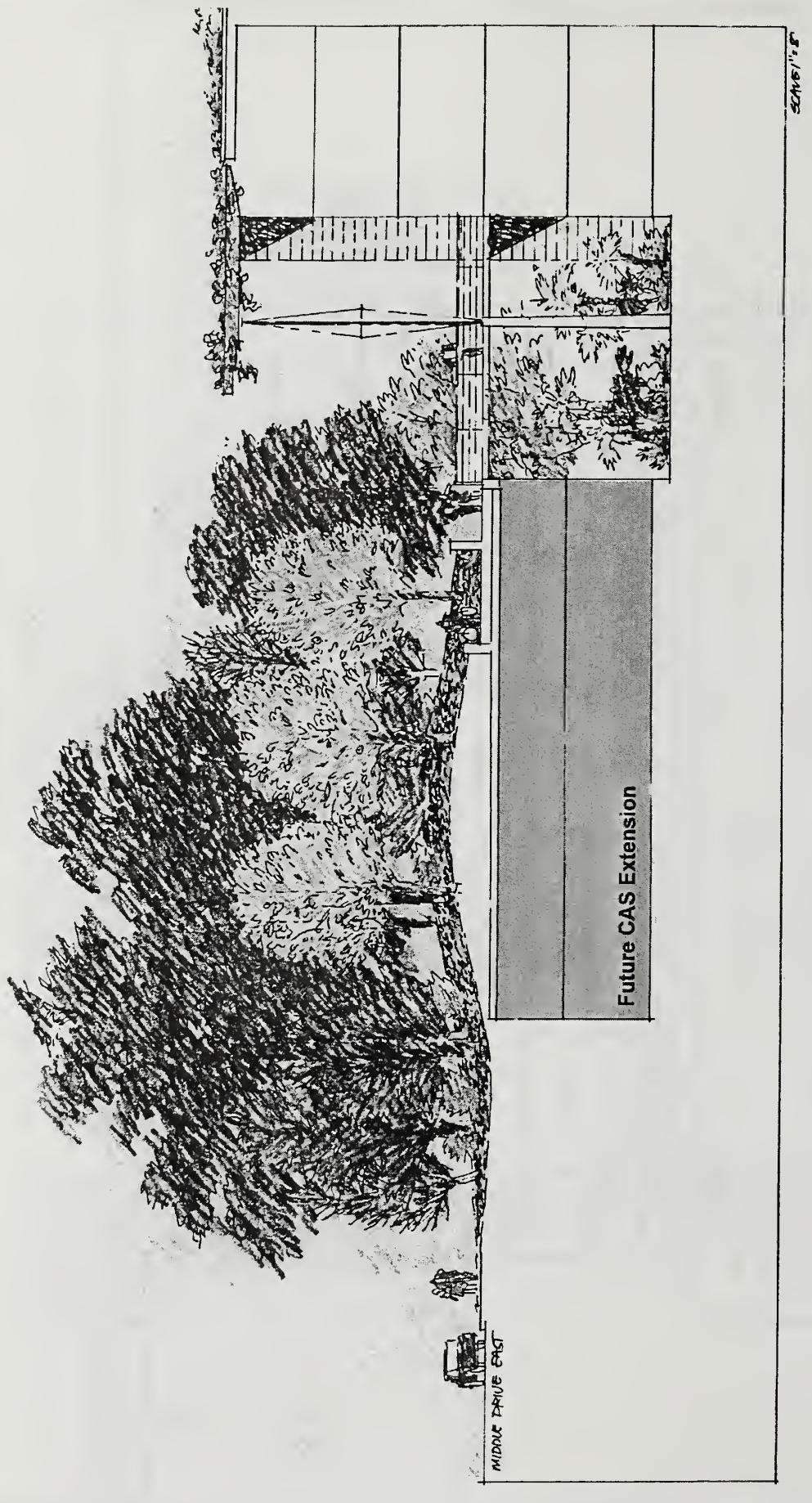


MIDDLE DRIVE EAST

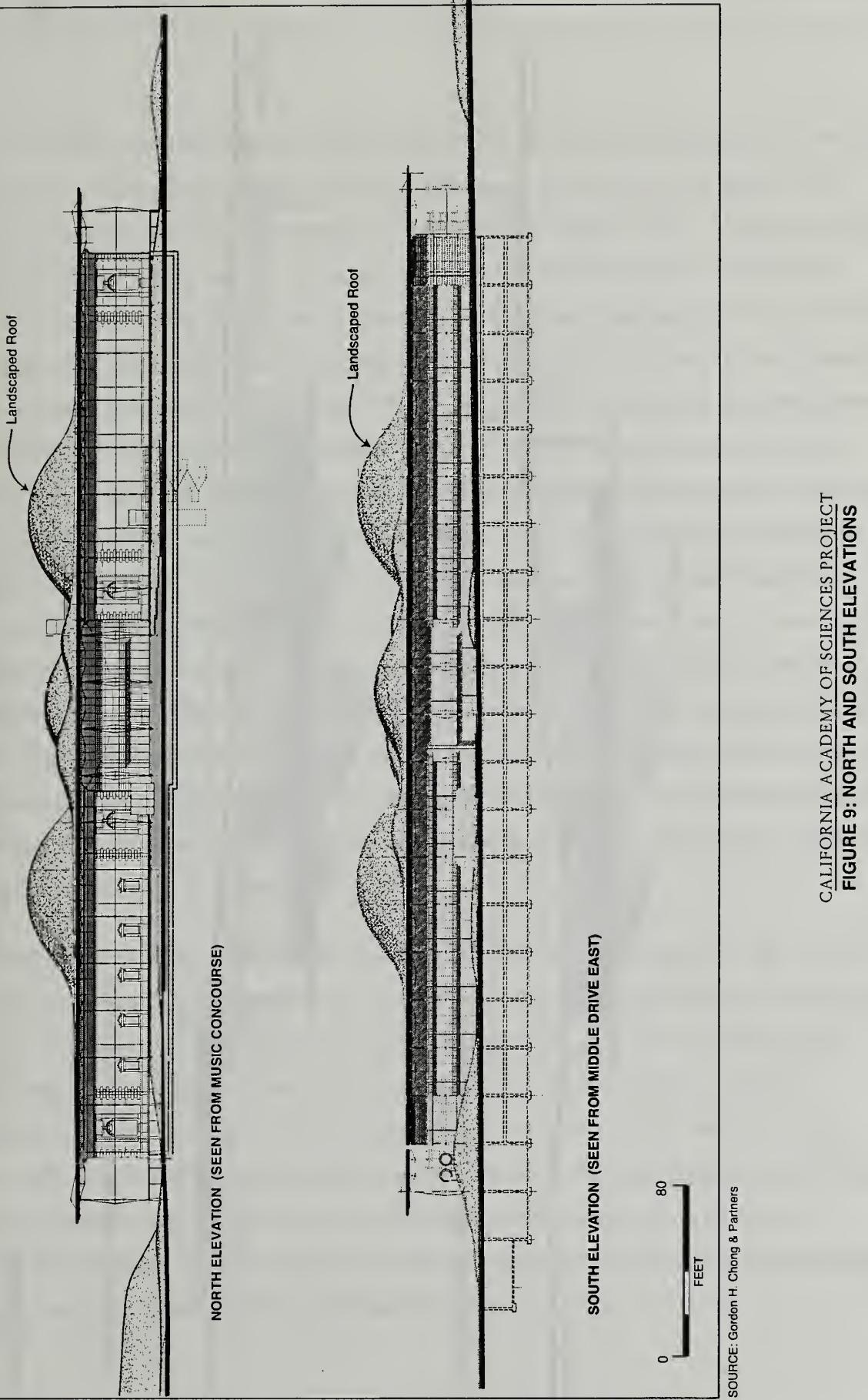


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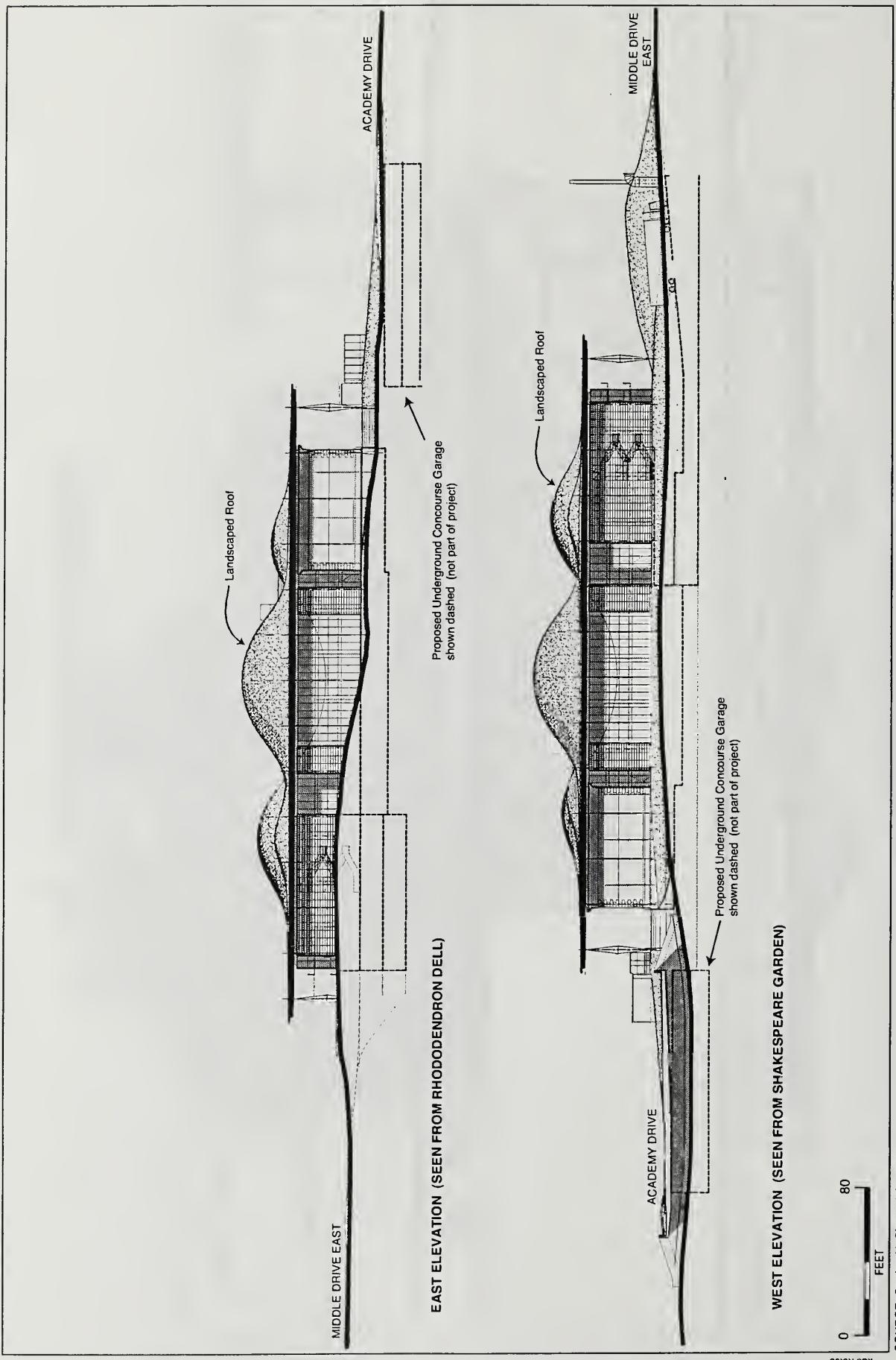
CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 7: FLOOR PLAN BASEMENT LEVEL B2



CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 8: SECTIONS OF FUTURE COLLECTIONS GROWTH AREA



CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 10: EAST AND WEST ELEVATIONS



SOURCE: Gordon H. Chong & Partners

The new Academy building would be approximately 460 feet long, and 280 feet wide, with the edges of the roof extending to approximately 520 feet long by 335 feet wide, and would feature a landscaped roof, the base height of which would be under 40 feet. Above the base, the landscaped roof would undulate to accommodate the Academy's major programmatic components beneath, with the two peak elements over the planetarium and rainforest exhibits reaching a height of about 67 feet, or approximately 13 feet higher than the highest existing point, the dome of Morrison Planetarium. These two peaks would be set back approximately 150 feet from the roof's edge along Academy Drive. The roof's shape would follow the contours of these central building components and exhibits and would be intended to read as an organic park-like element unifying the elements of the facility and integrating the structure with the Park's adjacent landscaping. The roof would incorporate living plants and glass expanses, and provide limited opportunity for public access. Elements of the roof would also be visible from below, within the Academy, through the glass expanse features in the lobby and central courtyard. The roof would extend beyond the building's walls by approximately 34 feet. The extension would be designed as a trellis. The roof perimeter would be supported by a series of slender (approximately 8-inch diameter) steel columns. The ground beneath the extended roof would consist of landscaped areas within the Academy's jurisdiction, but would be designed to appear as an extension of the Park.

Simson African Hall is the only existing Academy facility that would remain at the new CAS. This structure would be integrated into the new design with some modifications. All interior spaces of the hall would remain intact, including the dioramas, except for the Water Hole exhibit along the east wall which would be replaced with a penguin exhibit. The entry vestibule at the west end of the building would be sealed off from the exhibit hall with a partition wall, and would become a museum store. The north and east-facing exterior facades visible from outside the CAS would remain unchanged, with the exception of the new overhanging roof and perimeter columns. Additional structural and life/safety improvements would also occur for Building Code compliance purposes.

● North American Hall would be one of the buildings demolished for the project. The new construction on west end of the site fronting the Music Concourse would include stone, other materials, proportions and dimensions to reflect the overall character of North American Hall.

Compared to the existing facility, the new Academy would increase the floor area of the Academy's functions on a smaller footprint. The floor area would increase from approximately 350,000 square feet to approximately 390,000 square feet, as shown in Table 1. The footprint would decrease from approximately 240,000 square feet to approximately 205,000 square feet.²

This increase in area on a smaller footprint is possible primarily because the newly-constructed space would significantly increase basement areas. Mechanical space would be accommodated in the basement of the new Academy. Taking into account mechanical functions now in use on the roof of the existing Academy of Sciences buildings, which are not included in the existing floor area, the overall floor area of the new Academy would be similar to current conditions. The new Academy would be designed to accommodate space needs for approximately twenty years after opening. Should additional space be required at that time, it would be constructed and accommodated in an additional two-story basement collection growth space approximately 80,000 sq. ft. in size, to be located below grade behind the Middle Drive East entrance, to the south of the main facility. Plan views of this area are illustrated on Figures 6 and 7, with a section view on Figure 8. This space would be intended primarily to house growth of the scientific collections and related support functions. The collections growth area would face the open air light well created by the adjacent façade as part of the new CAS facility. The distance between the adjacent façades would be about 40 feet, creating a courtyard at the lower basement level. A new corridor would connect the collections space to the balance of the facility. The southernmost wall of this space would be approximately 45 feet from the curbline of Middle Drive. This collections growth area is included as part of the project.

The Academy would retain its general location and orientation. The Academy Drive entrance would be shifted to the northeast to center the facility on the site. The new configuration would provide an increased setback from the Shakespeare Garden area by approximately 46 additional feet from the edge of the roof, or approximately 80 additional feet from the building's west-facing façade.

TABLE 1
EXISTING AND NEW ACADEMY PROGRAM

Uses	Existing (sq. ft.)	Proposed (sq. ft.)
Museum Space	100,500	100,900 ¹
Visitor Services	39,500	38,500
Research, Collections & Administrative	141,400	156,600
Mechanical, Electrical & Plumbing	66,000	103,400
Total Museum Floor Area	347,400	389,400
Footprint	240,000	205,000
Building Heights	40 - 54 ft.	40 - 67 ft.
Parking	73 spaces	15 CAS vehicle-only spaces

Source: California Academy of Sciences

Notes: ¹Includes existing Simson African Hall (36,000 sq. ft.)

The CAS would be served by a vehicle drop-off area and entrance lobby on Academy Drive, and another entrance and drop-off along Middle Drive East.³ Approximately 73 parking spaces would be removed, and space for about 15 new service and Academy vehicles would be provided in the loading area, as shown in Figure 6. Loading would be provided on the southwest portion of the site, below grade, and adjacent to collections, research and administrative functions. This area would consist of three loading docks, connected by a corridor to the service elevator. These spaces would consolidate the existing loading functions, which currently consist of a series of small docks/loading door areas at the basement level and in the existing Aquarium area. The westernmost edge of the below-grade loading docks would be set back approximately 20 feet from the eastern boundary of Shakespeare Garden. The RC&A building would be set back approximately 105 feet from Shakespeare Garden.

The project would provide approximately 11 bicycle spaces for employees, at least half of which would be Class I spaces as required by Code. The Academy proposes additional bicycle parking for employees and patrons. The spaces are currently proposed to be accommodated near the Academy Drive and Middle Drive East entrances of the CAS. In

addition, the CAS would provide four and eight clothes lockers for CAS staff, to be located in the basement of the CAS.

Excavation for the project would be required for full basement and partial sub-basement levels. The full basement level would average 17 feet below grade. Maximum depths are expected to be 24 feet below grade at the sub-basement level, in selected areas. Portions of the site would be excavated to approximately 36 feet below grade to remove the existing basement. Excavation would remove approximately 40,000 cubic yards (cy) of soil; of the excavated soil, approximately 14,000 cy would be used as fill at the site and up to approximately 26,000 cy would either be reused in the Park or hauled off the site. Additional excavation for the collections growth area would involve approximately 23,400 cubic yards of soil, the majority of which would be off-hauled from the site.

ACADEMY OF SCIENCES TRANSITION FACILITY

During the rebuilding effort, the Academy would temporarily relocate to a transition facility, at 875 Howard Street near Fifth Street in downtown San Francisco, for a period of four years (approximately from December 2003 to December 2007), while the new CAS in Golden Gate Park is built. The building at 875 Howard Street is a six-story, concrete warehouse with a single basement level, with approximately 276,800 gsf in total floor area, located in the C-3-S Use District (Downtown Support). Approximately 92,100 gsf of existing retail uses (Burlington Coat Factory) would remain, providing the CAS with a total of about 184,700 gsf of temporary uses.⁴ The CAS activities in the transition facility would be similar to those at the current facility with a substantially smaller exhibit/public support component.⁵ As such, the majority of the space would be occupied by administrative, research, and collections functions.

Interior changes at 875 Howard Street would include wall partitions and other interior architectural elements to accommodate the CAS activities. Exterior improvements would be limited to signage and a new door on the west elevation to connect an exterior stair to the existing stairwell. The building was brought up to current Building Code requirements in 2000, and no additional structural improvements would be required to accommodate the

temporary facility. Construction is anticipated for June through November 2003, with exhibit installation October 2003 through January 2004.

Approximately 300 employees would be located on that site, with an anticipated public attendance of approximately 285,000 visitors per year. Average daily attendance is projected to be about 760 on weekdays; 870 on Saturdays; and 790 on Sundays, based on estimates of visitor patterns at the existing Academy Building. Maximum peak daily attendance is projected to be 1,910 visitors⁶. Visits by school groups and other larger groups would be coordinated through a pre-registration and scheduling program for specific days and time periods, primarily staggered and outside of the PM peak-period. Visitor hours would be 9:00 AM to 6:00 PM up to seven days a week during summer, and 10:00 AM to 5:00 PM during fall, winter and spring. Special events would be primarily in the evening, and would use the public spaces of the facility.

Pedestrian access would be provided in two locations on Howard Street, with a secondary access on Tehama Street located at the rear (south side) of the building. Parking would include 33 on-site parking spaces in the basement and accessed from Tehama Street. The balance of employee and visitor parking would be in nearby structures and lots, such as the Fifth and Mission Garage one block away from the Howard Street site. Truck loading would be at a single loading dock at rear of the building off Tehama Street, with additional loading space for vans or smaller vehicle delivery vehicles in basement garage. Bus arrivals/departures would occur primarily along Fifth Street. Parking meter removal would be requested in connection with project.

The Academy would be required to obtain new environmental permits similar to those maintained at the current CAS facility and would handle and store its chemicals in accordance with the standard regulatory procedures, permit requirements, and practices consistent with those used at the existing CAS facilities.

A Negative Declaration, April 28, 2000, and Transportation Study, March 14, 2000, evaluated a proposal to develop approximately 92,000 gross square feet of retail space and 175,000 gross square feet of office space in the 875 Howard Street building.⁷ That Negative

Declaration is incorporation herein by reference. The Planning Department has concluded that proposal would not result in any significant impacts and is currently preparing an addendum based on that Negative Declaration to provide environmental clearance for the proposed CAS transition facility. The proposed CAS transition facility would contain administrative and other uses that would be substantially similar to those analyzed in that Negative Declaration.

RELATIONSHIP TO OTHER CONCOURSE AREA PROJECTS

Other projects in the Concourse Area included are the new deYoung Museum and the Golden Gate Park Concourse Authority (GGPCA) Projects. The under construction New deYoung Museum and the proposed GGPCA Projects are not part of the Academy of Sciences project, and are proceeding independently. In contrast to the New deYoung Museum, there would be no underground connection between the CAS project and the GGPCA Underground Parking Facility. Coordination among the Academy of Sciences, the Golden Gate Park Concourse Authority, the deYoung Museum, the Recreation and Park Department and Commission, and other affected agencies is currently occurring on a regular basis. This coordination would continue during the implementation of the Academy of Sciences project. Coordination has also occurred through the environmental review process, including in the development of a consistent transportation methodology and impacts analysis. Cumulative impacts of the projects in Golden Gate Park are discussed in this EIR as appropriate.

As described in the *Golden Gate Park Concourse Authority Projects Draft EIR*⁸, Phase I of the Golden Gate Park Concourse Authority Project would include construction of an Underground Parking Facility that would accommodate about 800 cars, configured in two, two-level structures: one beneath Tea Garden Drive between the New de Young Museum and the Music Concourse and the second beneath Academy Drive between the California Academy of Sciences and the Music Concourse. The two structures would be connected by an underground vehicle tunnel at the east end of the Music Concourse bowl. A ramp at Tenth Avenue and Fulton Street, beginning outside the Park, would provide an entrance and exit for the Underground Parking Facility. An entrance and exit would be constructed to ramp down from Academy Drive west of the Academy of Sciences. The total footprint of the parking

facility would be approximately 200,000 square feet (sq. ft.). The GGPCA Projects would also include transportation improvements in the Concourse area and throughout Golden Gate Park, such as removal of surface parking spaces from the Concourse area, and in locations throughout the Park, equivalent to the number of spaces provided in the new Underground Parking Facility.

Phase II of the project is an unfunded component of the GGPCA Projects. For purposes of consistency with the GGPCA EIR, this EIR analyzes Phase I of the GGPCA Projects, and also discusses Phase II where pertinent. If implemented in the future, Phase II would entail construction of an Underground Through Street connecting Fulton Street to Middle Drive East, which would allow for through traffic to be restricted or eliminated from Tea Garden Drive and Academy Drive. The proposed underground roadway would ramp down at Eighth Avenue at Kennedy Drive and would extend beneath the east end of the Concourse and alongside the east side of the California Academy of Sciences, where it would ramp up to Middle Drive East. This underground street would not provide access into the parking area and would be intended to reduce cross-park vehicular traffic through the Music Concourse.

In addition, the Board of Supervisors is currently considering legislation to implement a partial closure of Kennedy Drive on Saturdays. This proposal is not part of the Academy of Sciences project, the New de Young Museum, or the Golden Gate Park Concourse Authority Projects. It is discussed qualitatively in the Transportation analysis.

D. PROJECT SCHEDULE, COST, APPROVALS AND GENERAL PLAN POLICIES

Project review and approval is expected to be complete in mid-2003. The development schedule includes closure of the Academy later that year, followed by approximately three months of hazardous materials abatement. Project staging and demolition would begin in mid-2004, and would continue for about six months. Construction would begin in late 2004 and last about 27 months. Final exhibit work would continue for approximately four months, with the new Academy opening in approximately the Spring of 2008. If the 80,000 sq. ft.

expanded collections space were constructed in the future, the anticipated construction period would be approximately an additional 18-24 months.

E. APPROVAL REQUIREMENTS

Each entity would adopt CEQA findings and a Mitigation Monitoring Program, and determine consistency of the project with the General Plan and Section 101.1 of the Planning Code, as required. In addition, the following actions and consultations would need to be undertaken to implement the project:

Planning Commission/Planning Department

- Certifies Final Environmental Impact Report.
- Considers potential Section 295 shadow impacts.

Zoning Administrator

- Considers parking variance or exception.

Recreation and Park Department/Commission

- Consults with Project Sponsor on landscaping and restoration plans.
- Consults with Project Sponsor on project access plans, including land and sidewalk closures.
- Considers potential Section 295 shadow impacts.
- Considers project approval under City Administrative Code Section 2A.160 including design and approval.
- Takes certain actions related to public contracting under the City Administrative Code Chapter 6.

Board of Supervisors

- Considers project approval under City Charter Section 4.113.
- Takes certain actions related to bond issuances and public contracting under City Administrative Code Chapter 6.

Arts Commission

- Considers design approval under City Administrative Code Section 2A.160.

NOTES — Project Description

¹ This program is described in Administrative Code Section 82.8. Pilot projects are designed to demonstrate innovative construction techniques, building materials, landscaping techniques, and/or other building systems addressing the following pilot demonstration goals: improved energy efficiency; consideration of energy generation by passive solar or other renewable source; improved water conservation; healthy indoor air quality; adequate storage and collection of recyclables; environmentally sensitive landscaping; procurement of building materials with minimal environmental impacts; building design features that discourage pest infestation; stormwater management; water pollution prevention; and wastewater recycling.

² Future expansion would add a 15,000 sq. ft. courtyard for a total footprint at 217,500 sq. ft. The remainder of the expansion area would be below grade, with a footprint of approximately 35,000 sq. ft.

³ Access to the CAS would continue to be served in this arrangement either with or without the proposed Golden Gate Concourse Authority Underground Parking Facility.

⁴ Landmark Education currently occupies 20,000 gsf of classroom/administrative space, and will relocate prior to construction/renovation. The remainder of the building is vacant.

⁵ Public space (34,149 gsf), Exhibit/public support (15,404 gsf), Administration (17,036 gsf), Research and aquarium support (40,315 gsf), Library (stacks) (13,045 gsf), Storage/building support (unoccupied) (18,441 gsf), Storage/museum dry collections (31,770 gsf), Storage/museum wet collections (14,586 gsf).

⁶ Based on maximum building occupancy, calculated at 15 square feet/person.

⁷ City and County of San Francisco, *Negative Declaration, SOMA Square (881-899 Howard Street)*, March 14, 2000, Project File No. 1999.583E. Available for public review by appointment at the Planning Department, 1660 Mission Street, Suite 500. The project received Section 309, 320, and 321 approvals and was entitled in May 18, 2000.

⁸ San Francisco Planning Department, *Golden Gate Park Concourse Authority Projects Draft EIR*, 2001.911E, December 14, 2002.

III. ENVIRONMENTAL SETTING AND IMPACT

An application for environmental evaluation for the project was filed July 5, 2002 and an Initial Study was published on September 28, 2002. On the basis of an Initial Study, the San Francisco Planning Department determined that an EIR was required. The Initial Study determined that the following effects of the project would either be insignificant or would be reduced to a less than significant level by mitigation measures included in the project and thus required no further analysis: light and glare; population; employment and housing; noise; construction-related air quality; wind; utilities and public services; biology; geology and topography; water; energy and natural resources; hazards; and archaeological resources. Therefore, the EIR does not discuss these issues (see Appendix A, in the Initial Study). The Initial Study also found that the land use changes would not cause potential significant environmental effects and required no further analysis. This topic is included in the EIR for informational purposes and to orient the reader.

A. LAND USE, PLANS, AND ZONING

EXISTING LAND USES

The project site is on Academy Drive, on the south side of the Music Concourse in Golden Gate Park (see Figure 1). The project site is approximately 240,000 sq. ft. and is bordered on the northwest by the Music Concourse (across Academy Drive), on the southwest by the Shakespeare Garden, on the southeast by the Big Rec Ball Field (across Middle Drive East) and on the northeast by a meadow and woods within the Park. The site is within Lot 1 of Assessor's Block 1700, which includes all of the approximately 1,017-acre Golden Gate Park. The site is owned by the City and County of San Francisco. The existing Academy is comprised of 12 buildings constructed between 1916 and 1969, with renovations in 1977 and 1991.

The project site is within Golden Gate Park in an area that is characterized by a concentration of museum, educational and recreational uses clustered around the Music Concourse. The overall historical landscape character of Golden Gate Park is primarily pastoral and

naturalistic; however, the Park also includes a series of formal, organized spaces such as the Music Concourse. These formal spaces are generally surrounded by naturalistic borders or transition areas of landscaping that separate these regular, axial spaces from the rest of the Park. The axial plan of the Music Concourse provides short-range views of the buildings and historical landscaping features within the Concourse, such as the formal tree plantings and fountains. Long-range views beyond the formal open space of the Concourse include mature trees and other vegetation.

The Music Concourse area of Golden Gate Park has supported museum, educational and recreational uses since its development for the San Francisco Mid-Winter Fair in 1894. The Music Concourse bowl is a formal open space characterized by regularly spaced trees, seating and other landscape improvements several feet below the main roadway grade, bordered by Tea Garden Drive and Concourse Drive. The Music Concourse area includes the New deYoung Museum directly north of the site (currently under construction), across the Music Concourse from the project site. The band shell, or Spreckels Temple of Music, is at the west end of the Music Concourse. These elements are part of the mix of cultural activities and pastoral landscapes of Golden Gate Park. The Park as a whole is considered eligible for listing in the National Register of Historic Places as an historic district; a draft nomination for this listing has been prepared, but has not been formally submitted or approved. Contributing features to the District in the Music Concourse area include: the CAS as an institution, Music Concourse; Spreckels Temple of Music; Francis Scott Key Monument; Japanese Tea Garden; Shakespeare Garden; Rhododendron Dell; the pedestrian underpass known as the Tunnel under Main Drive (now Kennedy Drive); and the many monuments and fountains in the Music Concourse (see Section III.C, Historic Resources, for more detail).

Buildings on the project site, including the existing Academy, are generally up to approximately 40 feet high, rising to approximately 54 feet to the top of the Morrison Planetarium dome.

North of the site, extending to Fulton Street along Kennedy Drive are Golden Gate Park uses including a playground between Eighth Avenue and Tenth Avenue, and the Rose Garden, west

of Tenth Avenue. North of Fulton Street is characterized by residential uses with commercial and retail uses primarily along east-west streets such as Balboa Street. South of the site, outside of Golden Gate Park, are residential uses and the commercial and retail uses along Ninth Avenue and Irving Street. Residential uses include two-story to three-story structures.

Most of the Park's permanent structures are in the area east of Crossover Drive. In addition to the Music Concourse uses noted above, these include the Conservatory of Flowers; Park Headquarters (including McLaren Lodge); the tennis courts and clubhouse; lawn bowling greens and clubhouse; Strybing Arboretum and Botanical Gardens; the Sharon Building, carousel, and Children's Playground; Kezar Stadium and Pavilion; the Park Police and Emergency Aid Stations; the handball courts; Stow Lake Boat House; the Pioneer Log Cabin; and the Park maintenance yard and nursery. Landscaping in the eastern portion of the Park is designed with meadows, dells, flower gardens, groves, and two waterfalls (Rainbow and Huntington). Stands of trees in this area include native oaks, mixed conifers, redwoods, pines, eucalyptus and other broadleaf evergreens.

Overall, the project vicinity is a museum, educational, recreational, and cultural activities and open space area serving residents and visitors. In 1995, the voters of San Francisco approved a \$29,245,000 bond measure (Proposition C) for improvement of the Steinhart facility. In 2000, the voters approved a second measure (Proposition B) of \$87,445,000 for improvement of the overall Academy facilities.

In 1998, voters of San Francisco approved Proposition J, the Golden Gate Park Revitalization Act of 1998, which will improve and landscape the Music Concourse area, implement transit access improvements, and construct an underground parking facility with dedicated access routes from outside the Park in or about the Concourse area. As discussed in Chapter II, Project Description, the proposed Golden Gate Park Concourse Authority Projects under Proposition J are not part of the Academy project, and are proceeding independently. However, coordination among the CAS, the Golden Gate Park Concourse Authority, the deYoung Museum, the Recreation and Park Department and Commission, and other trustee and responsible agencies has been occurring regularly through an existing committee convened

by the Office of the City Architect. This coordination will continue during the implementation of the Academy of Sciences project.

Phase I of the Golden Gate Concourse Authority Project would include construction of an Underground Parking Facility that would accommodate about 800 cars, configured in two, two-level structures: one beneath Tea Garden Drive between the New deYoung Museum and the Music Concourse and the second beneath Academy Drive between the California Academy of Sciences and the Music Concourse. The two structures would be connected by an underground vehicle tunnel at the east end of the Music Concourse Bowl. A ramp at Tenth Avenue and Fulton Street, beginning outside the Park, would provide an entrance and exit for the Underground Parking Facility. An entrance and exit would be constructed to ramp down from Academy Drive west of the Academy of Sciences. The GGPAC project would also include transportation improvements in the Concourse area and throughout Golden Gate Park, such as removal of surface parking spaces from the Concourse area, and in locations throughout the Park, equivalent to the number of spaces provided in the new Underground Parking Facility.

Phase II of the project is an unfunded component of the GGCA Projects. If implemented in the future, Phase II would entail construction of an Underground Through Street connecting Fulton Street to Middle Drive East, which would allow for through traffic to be restricted or eliminated from Tea Garden Drive and Academy Drive. The proposed Underground Through Street would ramp down at Eighth Avenue at Kennedy Drive and would extend beneath the east end of the Concourse and alongside the east side of the California Academy of Sciences, where it would ramp up to Middle Drive East. This underground street would not provide access into the parking garage and would be intended to reduce cross-park vehicular traffic through the Music Concourse. If Phase II were implemented, it would be necessary to review detailed plans to confirm that the alignment would not interfere with the CAS building and service roads.

The Golden Gate Park Concourse Authority submitted an application for Environmental Evaluation Application in September 2001, and an Initial Study in May 2002. The Draft EIR

was published on December 14, 2002 and is in the public review process, comments and responses period.

The CAS project site is within a P (Public Use) zoning district, and within an OS (Open Space) Height and Bulk district. Permitted uses in a P zoning district include public structures of the city and other governmental agencies when in conformity with the San Francisco General Plan. Approvals and actions for various aspects of the project are discussed in Chapter II, Project Description, pp. 22 to 23. There are no specific height and bulk limits in the OS height and bulk district. Height and bulk of buildings and structures are determined in accordance with the objectives and policies of the *San Francisco General Plan*.

LAND USE CHANGES

The project would increase the overall floor area of the Academy by approximately 40,000 square feet. Much of this increase in square footage would be in terms of additional research, collections, and administrative space, as well as mechanical, electrical, and life-support functions. Square footage devoted to museum use would remain relatively constant compared to existing levels, and the overall footprint would be reduced due to increased basement areas. The project would contain similar educational and recreational features as are currently provided by the existing Academy, in a more efficient layout. The future collections growth space would also be consistent with the existing uses on the project site. The uses would be consistent with the cultural, educational, and recreational uses of the museum and Golden Gate Park as a whole. Overall, the project would be consistent with uses on the site since the establishment of the Academy in 1916, and with the Academy's project objectives.

The project would continue to be part of the cultural and recreational activities around the Music Concourse, such as the New deYoung Museum, the Japanese Tea Garden, and the band shell.

CHANGES IN ATTENDANCE

The Academy attendance has experienced a steady decline in recent years. In 2001, attendance was less than 800,000, with an average daily attendance of about 2,200, as

compared to higher numbers in the 1970's and 1980's. In 1977, for example, approximately two million visitors attended the Academy for the opening of the fish roundabout. Upon project completion, the Academy anticipates a stabilized annual attendance figure of about 1.3 million.¹ While attendance would intensify compared with existing levels, annual visitorship is projected to return to levels seen during the 1970's and 80's. The effect of increased numbers of visitors on transportation and related effects will be discussed in the EIR.

PLAN CONSISTENCY

The Planning Commission and other City decision-makers would evaluate the proposed project against the provisions of the *General Plan* and would consider potential conflicts with the *General Plan* as part of the decision-making process. This consideration of General Plan objectives and policies is carried out independently of the environmental review process, as part of the decision to approve, modify or disapprove a proposed project. Any potential conflicts with provisions of the *General Plan* that would cause physical environmental impacts have been evaluated as part of the impacts analysis carried out for other topics in this project EIR and the Initial Study, Appendix A. Any potential conflicts with General Plan policies would be considered in the project evaluation process. To the extent any such conflicts would alter the physical environmental effects of the proposed project, such impacts would be addressed prior to project approval.

General Plan Policies

The *San Francisco General Plan* Recreation and Open Space Element includes policies for preserving existing open space; preserving sunlight in public open space; eliminating non-recreational uses and reducing automobile traffic in parks; and making open space accessible to people with special needs. The Urban Design Element policies call for protection of important views, quality of design and relationship to open spaces, increase in visibility of major destination areas, and height and bulk characteristics. The EIR discusses project effects on visual quality and urban design in Section III.D, Visual Quality, and effects on shading of open space in Section III.F, Shadow.

The project would be reviewed by the Planning Department/City Planning Commission in the context of applicable objectives and policies of the *San Francisco General Plan*. Some key objectives and policies are noted here; others may be addressed when necessary approvals are sought.

Recreation and Open Space Objectives and Policies

- Objective 2: Develop and Maintain a Diversified and Balanced Citywide System of High Quality Public Open Space.
 - Policy 2: Preserve existing public open space.
 - Policy 3: Preserve sunlight in public open space.
 - Policy 4: Gradually eliminate non-recreational use in parks and reduce automobile traffic in and around public open spaces.
 - Policy 6: Make open space accessible to people with special needs.
 - Policy 10: Develop a master plan for Golden Gate Park. Acknowledge Golden Gate Park's contribution to the diversity of cultural and recreational activities available to residents of San Francisco and the Bay region.

Urban Design Objectives and Policies

- Objective 1: Emphasis of the characteristic pattern which gives to the City and its neighborhoods an image, a sense of purpose, and a means of orientation.
 - Policy 1: Recognize and protect major views in the city, with particular attention to those of open space and water.
 - Policy 4: Protect and promote large-scale landscaping and open space that define districts and topography.
 - Policy 8: Increase the visibility of major destination areas and other points for orientation.
- Objective 3: Moderation of major new development to complement the city pattern, the resources to be conserved, and the neighborhood environment.
 - Policy 1: Promote harmony in the visual relationships and transitions between new and older buildings.
 - Policy 2: Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance.
 - Policy 3: Promote efforts to achieve high quality of design for buildings to be constructed at prominent locations.

- Policy 4: Promote building forms that will respect and improve the integrity of open spaces and other public areas.
- Policy 5: Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development.
- Policy 6: Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction.

Environmental Protection Objectives and Policies

- Objective 12: Establish the City and County of San Francisco as a model for Energy Management.
 - Policy 1: Incorporate energy management practices into building, facility, and fleet maintenance and operations.
 - Policy 3: Investigate and implement techniques to reduce municipal energy requirements.

The decision-makers may identify potential conflicts between the project and policies of the General Plan and other plan elements. Those conflicts would not be considered significant environmental effects. During the project approval process, the decision-makers must evaluate and balance the potentially conflicting goals of different General Plan policies and plan elements.

City Planning Code Section 101.1

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which established eight Priority Planning Policies. The policies, contained in Section 101.1 of the City Planning Code, are: (1) preservation and enhancement of existing neighborhood-serving retail uses and enhancement of resident employment and ownership; (2) protection of existing housing and of neighborhood character; (3) preservation and enhancement of affordable housing; (4) ensure that commuter traffic not impede transit service or overburden street or neighborhood parking; (5) maintenance of a diverse economic base by protecting industrial and service land uses from commercial office development, and enhancement of resident employment and business ownership; (6) earthquake preparedness; (7) landmark and historic building preservation; and (8) protection of open space. Before issuing a permit for any project or adopting any legislation that requires an Initial Study under

the California Environmental Quality Act, or adopting any zoning ordinance or development agreement, and before taking any action which requires a finding of consistency with the *General Plan*, the City is required to find that the proposed project or legislation is consistent with the Priority Policies. The project appears to be consistent with the Priority Policies, and with no apparent conflict that would trigger physical environmental impacts.

Golden Gate Park Master Plan

The *Golden Gate Park Master Plan*, prepared for and adopted by the Recreation and Park Commission, is a comprehensive planning document that includes general objectives and policies for the Park, management strategies, and specific objectives and policies relating to the Park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, Park maintenance and operations and special area plans.

The *Park Master Plan* assumes that the museums, including the Academy, remain as existing facilities in the Park, and the policies of the *Park Master Plan* encourage retention of museums in the Park. Though the museums have been considering a number of possible scenarios, no specific proposals for physical changes to the museums, or relocation of their facilities or operations, are included in the *Park Master Plan*. The *Park Master Plan* includes the *Music Concourse Special Area Plan*, although the *Park Master Plan* notes that this special area plan has been deferred pending actions by the Concourse Authority established pursuant to Proposition J. The Park Master Plan also includes policies and objectives related to retention of significant landscape resources and consideration of the Park's pastoral character, contained primarily in the Park Landscape Element.

As discussed above, Proposition J projects include the Golden Gate Park Concourse Authority Parking Garage Project which would include eliminating all surface-level parking in the Music Concourse area and would construct a new 800-car underground parking garage, with surface-level roadway improvements and landscape restoration beneath and around Music Concourse Drive. The Music Concourse Bowl would not be affected by that project. The southern portion of the two-level subsurface garage would be adjacent to (but will not abut) the northern

edge of the proposed project. While no physical connection between the garage and the lower levels of the Academy are proposed, many Academy visitors would Park in the new garage once completed, and would take stairs and/or elevators to the main entrance of the Academy at the ground level. Overall, parking would be a compatible use with the Academy and would facilitate access to this cultural institution. The Proposition J projects also include a variety of proposed transportation improvements to the Concourse area, which would be consistent with the CAS Project. In addition, the proposed Academy project would retain its existing relationship in terms of location and use of the New deYoung Museum, to be rebuilt in its original location. It would also retain significant landscape elements and circulation patterns, and would include a landscape plan designed to address Park Master Plan policies related to the pastoral character of the Park. As a result, the proposed Academy Project would be generally consistent with the *Golden Gate Park Master Plan* and the Music Concourse Special Area Plan/Proposition J projects.

NOTES — Land Use, Plans, and Zoning

¹ Economics Research Associates, *Attendance Potential*, prepared for the California Academy of Sciences, February 27, 2002. This document is available for public review by appointment at the San Francisco Planning Department, 1600 Mission Street, Suite 500.

B. TRANSPORTATION¹

SETTING

TRAFFIC

Regional Access

The primary regional access to the project site is via State Route 1 (SR 1). Within San Francisco, SR 1 runs on city streets, including Park Presidio Boulevard, Crossover Drive, Nineteenth Avenue and Junipero Serra Boulevard, and connects with US 101 to the north and I-280 to the south.

To access the Concourse area from the north via Park Presidio Boulevard (SR 1), vehicles are directed (by signs) to turn right onto Cabrillo Street, turn right onto Fourteenth Avenue, turn right onto Balboa Street and then turn right onto Tenth Avenue. This route is necessitated by the left-turn restrictions on Park Presidio Boulevard. To return to the north, vehicles can turn right from Fulton Street to Park Presidio Boulevard.

To access the Music Concourse area from the south via Nineteenth Avenue, vehicles can turn right onto King Drive, or turn right onto Irving Street or another east-west street south of the Park and then turn left onto Ninth Avenue. To return to the south, vehicles can use King Drive and turn left onto Crossover Drive/Nineteenth Avenue, or travel south on Ninth Avenue, turn right on Kirkham Street or another east-west street and then turn left on Nineteenth Avenue.

To access the Music Concourse area from the east, vehicles can use I-80 to US 101 (the Central Freeway) to the Mission Street off-ramp, and continue along Mission Street, Van Ness Avenue, Hayes Street and Gough Street to Fell Street to Kennedy Drive or Kezar Drive to King Drive.

Local Access

Cabrillo Street is an east-west roadway that extends from Arguello Boulevard to the Great Highway, and runs one block north of Golden Gate Park. Cabrillo Street has one travel lane in each direction, 12-foot wide sidewalks on both sides of the street. Parking is generally provided along both sides of the street. The *San Francisco General Plan* identifies Cabrillo Street as a Citywide Bicycle Route.

Fulton Street is an east-west arterial that extends from the Civic Center area to the Great Highway, and runs along the northern edge of Golden Gate Park. In the vicinity of the Music Concourse, Fulton Street has two travel lanes in each direction, 10- to 15-foot wide sidewalks and two-hour parking on both sides of the street. The *San Francisco General Plan* identifies Fulton Street as a Major Arterial² in the Congestion Management Program (CMP) Network³ and as a Transit Preferential Street (secondary transit street).⁴

Fell Street is an east-west arterial that runs between Market Street and Stanyan Street. West of Octavia Street, Fell Street operates one-way westbound only and forms a one-way couplet with Oak Street (eastbound), providing the primary east-west access across the northern section of the City. In the vicinity of Golden Gate Park, Fell Street has four travel lanes and on-street parking on both sides of the street. The *San Francisco General Plan* identifies Fell Street as a Major Arterial in the CMP Network and as part of the Metropolitan Transportation System⁵ (MTS) Network.

Oak Street is an east-west arterial that runs between Stanyan Street and Market Street. Between Stanyan Street and Franklin Street, Oak Street operates one-way eastbound only and forms a one-way couplet with Fell Street (westbound). In the vicinity of Golden Gate Park, Oak Street has four travel lanes and on-street parking on both sides of the street. The *San Francisco General Plan* identifies Oak Street as a Major Arterial in the CMP Network, part of the MTS Network and on the Bay, Ridge and Coast Trail.

Lincoln Way is an east-west arterial that extends between Arguello Boulevard and the Great Highway, and runs along the southern border of Golden Gate Park. In the vicinity of the

Music Concourse, Lincoln Way has two travel lanes in each direction, with on-street parking and 5 to 12 feet wide sidewalks on either side of the street. In the westbound direction, on-street parking is restricted during the weekday PM peak period (4:00 to 6:00 PM) to allow for an additional travel lane. The *San Francisco General Plan* identifies Lincoln Way as a Major Arterial in the CMP Network, part of the MTS Network and a Transit Preferential Street (secondary transit street).

Irving Street is an east-west roadway that extends between Arguello Street and the 48th Avenue, and runs one block south of Golden Gate Park. In the vicinity of the Music Concourse, Irving Street generally has two travel lanes in each direction, with on-street parking and 5 to 12 feet wide sidewalks on both sides. In the westbound direction, on-street parking is restricted during the weekday PM peak period (4:00 to 6:00 PM) to allow for an additional travel lane. The *San Francisco General Plan* identifies Irving Street as Transit Preferential Street (transit oriented) and as part of the Citywide Pedestrian Network⁶ (neighborhood commercial street).

Stanyan Street/Stanyan Boulevard is a north-south roadway that extends between Geary Boulevard and Belgrave Avenue, and forms the eastern edge of Golden Gate Park. Adjacent to the Park, Stanyan Street has two lanes in each direction, with on-street metered parking provided on both sides of the street. The *San Francisco General Plan* identifies Stanyan Street/Stanyan Boulevard as a Secondary Arterial and a Transit Preferential Street (secondary transit).

Arguello Boulevard is a north-south roadway that operates to the north and south of Golden Gate Park. At the northeast corner of the Park, Arguello Boulevard provides a vehicular entrance into the Park, with a direct connection to Conservatory Drive East and West. At the southeast corner of the Park, Arguello Boulevard runs between Irving Street and the Park (but no longer connects with Kezar Drive). In the vicinity of the Park, Arguello Boulevard has one travel lane in each direction, with on-street metered parking generally provided on both sides of the street. The *San Francisco General Plan* identifies Arguello Boulevard as a part of the

Citywide Pedestrian Network (neighborhood commercial street), on the Bay, Ridge and Coast Trail and a Citywide Bicycle Route.

Eighth Avenue and Tenth Avenue are north-south roadways that provide access to the northeast portion of Golden Gate Park, with direct connection to Kennedy Drive. Both Eighth and Tenth Avenues have one travel lane in each direction, with on-street parking generally provided on both sides of the street (no parking is permitted along the eastern side of Tenth Avenue within the Park from 7:00 AM to 9:00 AM on weekdays). Outside of the Park, 15-foot wide sidewalks are provided on both sides of each street, whereas inside the Park, there are 4- to 6-foot wide pedestrian paths.

Ninth Avenue is a north-south roadway that provides access to the southeast portion of Golden Gate Park, with direction connection to King Drive. South of the Park, Ninth Avenue has one travel lane in each direction, with metered on-street parking and 12-foot wide sidewalks on both sides of the street. The *San Francisco General Plan* identifies Ninth Avenue as a part of the Citywide Pedestrian Network (neighborhood commercial street).

Park Presidio Boulevard is a north-south arterial that extends from the northern edge of Golden Gate Park to Doyle Drive and the Golden Gate Bridge and US 101 in the Presidio. Park Presidio Boulevard is part of Highway 1, which continues as Crossover Drive and Nineteenth Avenue to the south. Park Presidio Boulevard has three travel lanes in each direction, and left-turns are prohibited to cross-streets. On-street parking and sidewalks are not provided on either side of the street. The *San Francisco General Plan* identifies Park Presidio Boulevard as a Major Arterial in the CMP Network and a as a part of the Citywide Pedestrian Network (neighborhood commercial street).

Nineteenth Avenue is a north-south arterial that extends south of Golden Gate Park to Junipero Serra Boulevard, near the San Francisco County/San Mateo County line. Nineteenth Avenue is part of Highway 1, which continues as Park Presidio Boulevard to the north and Junipero Serra Boulevard and I-280/Highway 1 to the south. In general, Nineteenth Avenue has three travel lanes in each direction, with restricted left-turns to cross-streets. In the vicinity of the Golden Gate Park, Nineteenth Avenue has parking and sidewalks on both sides of the street.

The *San Francisco General Plan* identifies Nineteenth Avenue as a Major Arterial in the CMP Network.

Crossover Drive is a north-south arterial within Golden Gate Park. Crossover Drive is part of Highway 1, which continues as Nineteenth Avenue on the south side and Park Presidio Boulevard on the north side of the Park. Crossover Drive has three travel lanes in each direction. Sidewalks and on-street parking are not provided along Crossover Drive. The *San Francisco General Plan* identifies Nineteenth Avenue as a Major Arterial in the CMP Network.

John F. Kennedy Drive (Kennedy Drive) is a recreational street within Golden Gate Park and provides the primary east-west access across the northern side of the Park. Kennedy Drive has one travel lane in each direction, except for the segment between Eighth and Tenth Avenues which has two travel lanes in each direction. In the vicinity of the Music Concourse, on-street parking is generally provided along both sides of the street. The north path is designated as pedestrian only. The south side is a multi-use pathway that permits usage by pedestrians, bicyclists and skaters. The paths vary in width (generally 8 to 15 feet wide). The *San Francisco General Plan* identifies Kennedy Drive as a Recreational Street.⁷

Kezar Drive provides a connection between Fell/Oak Streets and Lincoln Way through the southeast corner of Golden Gate Park. Kezar Drive has two lanes in each direction, with 4-foot wide sidewalks on both sides of the street. On-street parking is provided along both sides of Kezar Drive between Lincoln Way and Waller Street. The *San Francisco General Plan* identifies Kezar Drive as a Major Arterial in the CMP Network and as part of the MTS Network.

Martin Luther King, Jr. Drive (King Drive) is a recreational street within Golden Gate Park and provides the primary east-west access across the southern side of the Park. Near the Music Concourse, King Drive is a two-way roadway, with one travel lane in each direction. On-street parking is generally provided along both sides of King Drive, except between Middle Drive East and Lincoln Way which has a No Parking restriction between 6:00 AM and 9:00 AM. Pedestrian paths or sidewalks are provided along both sides of the street (generally

8 to 15 feet wide). The *San Francisco General Plan* identifies King Drive as a Recreational Street.

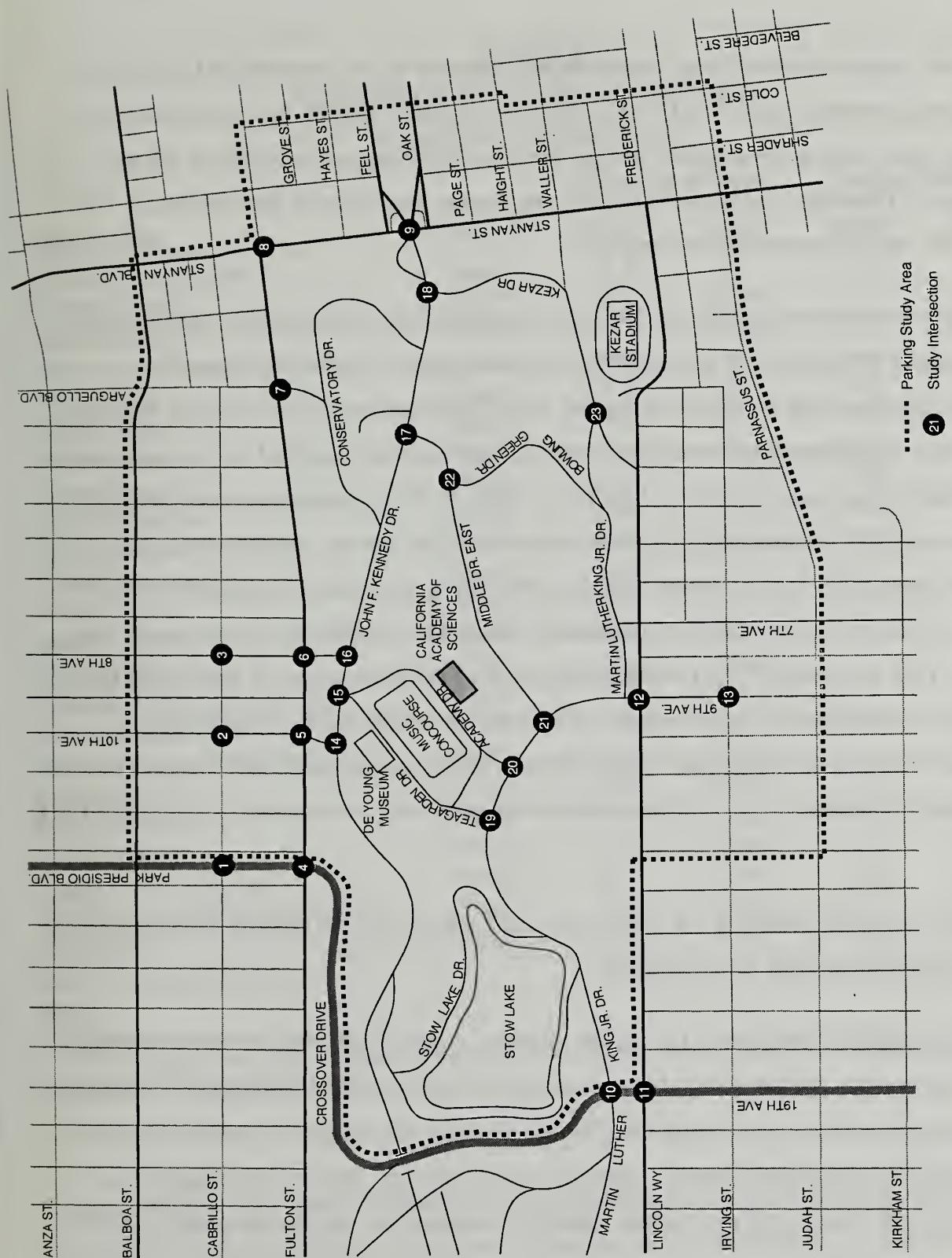
Tea Garden Drive/Academy Drive are recreational streets within the Music Concourse that provide access to the Music Concourse attractions, including the deYoung Museum, CAS and the Japanese Tea Garden. Tea Garden Drive and Academy Drive are each one-way roadways that form a counterclockwise loop and provide a connection between Kennedy Drive and King Drive. Academy Drive has one travel lane and Tea Garden Drive has two travel lanes, and sidewalks are provided along the outside of each roadway. On-street parking is provided along the east side of Academy Drive; in addition, Academy Drive provides access to a separate on-street parking area within the Music Concourse.

Middle Drive East is a recreational street within Golden Gate Park between King Drive and Kennedy Drive, and provides access to the south entrance of the CAS and the AIDS Memorial Grove. Middle Drive East has one lane in each direction, plus 3- to 8-foot wide sidewalks on both sides of the street. On-street parking is permitted along both sides of the street. The *San Francisco General Plan* identifies Middle Drive East as a Recreational Street.

Intersection Operating Conditions

The traffic analysis identified 23 study intersections most likely to be affected by the proposed project (see Figure 11). These study intersections include most of the local intersections adjacent to the project site, plus those along the main access routes to and from Golden Gate Park.

The intersections that were selected for analysis were anticipated to be the most affected by project-related traffic. Farther from a project site, traffic tends to disperse as there are multiple routes drivers can take to and from their origins/destinations. As such, project-related traffic would be less at those intersections than those closer to the project site. Therefore, at intersections farther from the project site (such as Seventh/Irving and Ninth/Judah), the effects of the project would be less than at the intersections selected for analysis.



SOURCE: Wilbur Smith and Associates

NOT TO SCALE

15/10/31/02

CALIFORNIA ACADEMY OF SCIENCES PROJECT

FIGURE 11: INTERSECTION LOCATIONS

Typically, intersection operating conditions are evaluated for the weekday PM peak-hour conditions (generally 5:00 to 6:00 PM). However, the peak activity for recreational and cultural uses, such as the proposed project, traditionally occurs on weekends in the early afternoon. Therefore, the Saturday midday and Sunday midday peak hour (generally 2:00 to 3:00 PM) were evaluated for this project.

The study intersections outside the Park are all controlled by traffic signals, and the study intersections within the Park are all STOP-controlled, except Tenth/Cabrillo and Eighth/Cabrillo which are STOP-controlled, and King/Crossover and King/Kezar which are signalized. Operating characteristics of both signalized and unsignalized intersections are described by the concept of Level of Service (LOS). LOS is a qualitative description of an intersection's performance based on the average delay per vehicle. Intersection level of service ranges from LOS A, which indicates free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. LOS A through D are considered excellent to satisfactory service levels, and LOS E and LOS F conditions are unacceptable. The operating conditions for unsignalized intersections are presented for the worst approach, and an unsignalized intersection was considered to operate at unacceptable conditions if more than one approach operated at LOS E or F.

Table 2 presents the results of the intersection LOS analysis for the existing Saturday midday and Sunday midday peak hour conditions.

Saturday Midday Peak Hour: During the Saturday midday peak hour, all of the signalized study intersections operate acceptably, except the intersection of Fulton/Stanyan. In addition, the worst approach at all of the unsignalized intersections also operates acceptably, except at the intersection of Kennedy/Kezar. However, at this location, since no other approaches operate at LOS E or F, the intersection would be considered to operate acceptably overall.

TABLE 2
INTERSECTION LEVEL OF SERVICE
EXISTING CONDITIONS

Intersection	Control	Saturday Midday		Sunday Midday	
		Delay ¹	LOS	Delay ¹	LOS
Cabrillo/Park Presidio	Signal	16.8	B	17.0	B
Cabrillo/Tenth ²	STOP	9.4	A (eb)	9.5	A (wb)
Cabrillo/Eighth ²	STOP	10.3	B (nb)	9.8	A (eb)
Park Presidio/Fulton	Signal	29.3	C	29.4	C
Fulton/Tenth	Signal	15.8	B	16.5	B
Fulton/Eighth	Signal	15.6	B	15.0	B
Fulton/Arguello	Signal	13.8	B	32.3	C
Fulton/Stanyan	Signal	67.8	E	>80	F
Kennedy/Stanyan	Signal	18.8	B	19.9	B
King/Crossover	Signal	34.5	C	35.9	D
Lincoln/Nineteenth	Signal	27.7	C	19.7	B
Ninth/Lincoln	Signal	26.3	C	13.5	B
Ninth/Irving	Signal	32.9	C	27.2	C
Kennedy/Tenth ²	STOP	11.6	B (eb)	-	-
Kennedy/Academy/Tea Garden ²	STOP	14.0	B (wb)	-	-
Kennedy/Eighth ²	STOP	11.0	B (wb)	-	-
Kennedy/Middle Drive East ²	STOP	14.9	B (wb)	-	-
Kennedy/Kezar ²	STOP	>50	F (eb)	-	-
King/Tea Garden ²	STOP	21.0	C (sb)	11.8	B (eb)
King/Academy ²	STOP	8.9	A (eb)	8.2	A (eb)
King/Middle Drive East ²	STOP	15.5	C (sb)	10.8	B (nb)
Middle Drive East/Bowling Green ²	STOP	8.0	A (wb)	7.5	A (nb)
King/Kezar	Signal	7.8	A	10.2	B

Source: Wilbur Smith Associates

Notes:

¹ Delay presented in seconds per vehicle.

² STOP-controlled intersection – delay and LOS presented for worst STOP-controlled approach. * indicates that a second approach also operates at LOS E/F.

Sunday Midday Peak Hour: During the Sunday midday peak hour, all of the signalized study intersections operate acceptably, except the intersection of Fulton/Stanyan. In addition, the worst approach at all of the unsignalized intersections also operate acceptably. Due to the Sunday closure of Kennedy Drive between Kezar Drive and Transverse Drive, four of the

study intersections (Kennedy/Tenth, Kennedy/Concourse, Kennedy/Eighth and Kennedy/Middle Drive East) have no traffic volumes and therefore were not analyzed for intersection operating conditions during the midday peak hour. In addition, at the intersection of Kennedy/Kezar, there are no traffic volumes on the eastbound (STOP-controlled) approach and the northbound/westbound approaches do not stop.

It should be noted that at the intersection of Ninth/Lincoln, the operating conditions during the two analysis periods were determined to be LOS D or better. However, both the northbound and southbound approaches have been observed to operate with substantial delays, resulting in queues that sometimes extend to the upstream intersections. In general, these conditions occur on busy weekends with good weather or events in the Park. However, both the eastbound and westbound Lincoln Avenue approaches have high traffic volumes and operate with minimal delays. As a result, the average delay per vehicle, as calculated using the HCM methodology, is relatively low and the overall intersection operating conditions are acceptable (as shown in the tables).

The study intersection of Ninth Avenue and Irving Street was observed to have occasional vehicular and transit conflicts during the Saturday midday and Sunday midday peak hour (the frequency and effect of these interactions can be greater during busy weekends). In the area, the MUNI N-Judah light rail line travels on Judah Street, Ninth Avenue and Irving Street. At the intersection of Ninth/Irving, the light rail line has a stop at the westbound approach (for outbound trains) and at the northbound approach (for inbound trains). In addition, the MUNI 44-O'Shaughnessy operates northbound and southbound on Ninth Avenue with stops at the northbound and southbound approaches.

Overall, vehicular traffic and transit was observed to travel through the intersection without substantial delay during the Saturday midday and Sunday midday peak hours, except for minor delays due to heavy pedestrian volumes. In general, the MUNI N-Judah light rail line and the 44-O'Shaughnessy bus line are not substantially delayed by traffic operations along both Ninth Avenue and Irving Street. In some instances, however, queues from the intersection of Ninth /Lincoln can delay traffic flow and bus operations on northbound Ninth

Avenue. When the MUNI N-Judah light rail line stops in the northbound and westbound directions, the trains block the travel lane. During these times, there is a temporary increase in vehicular and transit delay (44-O'Shaughnessy in the northbound direction only); however, these delays do not substantially affect traffic and transit operations at the intersection.

Weekday PM Peak Hour

In general, area-wide traffic volumes are typically higher and intersections are typically more congested during the weekday PM peak hour (generally 5:00 to 6:00), and the intersection operations were qualitatively assessed during this period, based on analysis conducted for the GGPRA projects. Overall, the study intersections currently operate acceptably during the weekday PM peak hour. In general, the study intersections along the major commute routes operate at LOS D (including those intersections along Stanyan Street, Crossover Drive and Lincoln Way). However, the intersection of Ninth/Lincoln was observed to be operating with substantial delays in the northbound and southbound direction (LOS D overall), and the intersection of Ninth/ Irving (LOS C overall) was observed to have additional vehicular and transit conflicts. However, since the CAS has reduced travel demand during the weekday evening, the proposed project would not substantially affect the weekday PM peak hour intersection operating conditions.

TRANSIT

The San Francisco Municipal Railway (MUNI) operates six bus lines and one light rail line in the vicinity of the project site, including the 5-Fulton, 21-Hayes, 28-Nineteenth Avenue, 31-Balboa, 44-O'Shaughnessy and 71-Haight/Noriega bus lines, plus the N-Judah light rail line. The 44-O'Shaughnessy provides direct access into Golden Gate Park and the Music Concourse area. In the Music Concourse, the northbound bus stop is adjacent to the California Academy of Sciences and the southbound bus stop is adjacent to the deYoung Museum site. The other bus lines and the light rail line operate on streets to the north and south of the project site.

According to recent field observations, the MUNI 44-O'Shaughnessy currently has available capacity in the vicinity of the project site during both weekdays and weekends. However, due

to traffic congestion along Ninth Avenue and King Drive during the weekend midday peak periods, the MUNI 44-O'Shaughnessy bus line often encounters delays in the northbound direction entering the Park and in the southbound direction leaving the Park.

No daily regional transit service operates in the vicinity of the project site. Regional transit operators, including AC Transit (East Bay), BART (East Bay and Peninsula), Caltrain (South Bay and Peninsula), Golden Gate Transit (North Bay) and SamTrans (South Bay and Peninsula) are accessible via MUNI bus and light rail lines. Connections to AC Transit, Golden Gate Transit and SamTrans can be made at the Transbay Terminal (via the MUNI 5-Fulton line), to BART at the Civic Center station (via the 5-Fulton, 21-Hayes or N-Judah lines), and to SamTrans at the Stonestown Galleria shopping center (via the 28-Nineteenth Avenue line).

PARKING

Existing public parking conditions were examined within a parking study area generally bounded by Balboa Street to the north, Funston Avenue and Crossover Drive to the west, Judah Street and Parnassus Avenue to the south, and Cole Street and Stanyan Boulevard to the east, as shown in Figure 10. The parking occupancy was surveyed for the Saturday and Sunday midday period (generally between 1:00 and 3:00 PM).

The parking study area was divided into four areas: north of Golden Gate Park, south of Golden Gate Park, east of Golden Gate Park and within the eastern half of the Park. Parking supply and occupancy within the Park includes both on-street curb parking and off-street lots that are available for public parking on weekdays or weekends, including Kezar Stadium, McLaren Lodge, Stow Lake, Children's Playground and the County Fair Building. Table 3 presents a summary of the parking supply and occupancy for the two time periods.

North of Golden Gate Park

The on-street parking north of the Park within the study area is generally unrestricted, except at the eastern and western ends which has residential permit parking with 2-hour parking limits on Monday through Friday (areas "N" and "L"). Overall, there are about 2,140 spaces,

which are well utilized on Saturdays and Sundays. Parking occupancy is higher on Sundays (90 percent versus 84 percent), reflecting the loss of parking supply in the Park due to the Sunday road closures (including Kennedy Drive and Conservatory Drive).

TABLE 3
EXISTING PARKING CONDITIONS

Time Period	North	East	South	East Park	Total
Saturday Midday					
Supply	2,137	1,404	2,317	3,095	8,953
Occupancy	1,711	1,318	2,137	2,502	7,668
% Occupied	80%	94%	92%	81%	86%
Sunday Midday					
Supply ¹	2,137	1,404	2,317	2,184	8,042
Occupancy	1,918	1,309	2,198	1,894	7,319
% Occupied	90%	93%	95%	87%	91%

Source: Wilbur Smith Associates

Notes:

Parking study area generally bounded by Balboa Street to the north, Funston Avenue and Crossover Drive to the west, Judah Street and Parnassus Avenue to the south, and Cole Street and Stanyan Boulevard to the east.

¹ On Sundays, a portion of the parking supply within Golden Gate Park is not available due to roadway closures.

East of Golden Gate Park

East of the Park, on-street parking to the north of Oak Street and to the south of Haight Street is within residential permit districts (areas "L" and "J", respectively). In both areas, on-street parking has 2-hour time limits on Monday through Friday. Between Oak and Haight Streets, on-street parking is generally unrestricted. Overall, there are about 1,400 spaces, which are almost completely occupied during both Saturdays and Sundays.

South of Golden Gate Park

South of the Park, on-street parking to the west of Eighth Avenue is generally unrestricted; on-street parking east of Eighth Avenue is within a residential permit district with 2-hour parking limits on Monday through Friday (area "J"). West of Seventh Avenue, on-street parking along Irving Street is metered (approximately 140 spaces). The parking supply in this area includes three publicly-accessible off-street parking lots, primarily serving the Ninth and Irving commercial area. Overall, there are about 2,320 on-street parking spaces within the

study area, which are almost completely occupied on Saturdays and Sundays. Since the Sunday road closures are concentrated along the north side of the Park, the parking demand south of the Park is similar on both Saturdays and Sundays.

Within Golden Gate Park

In the parking study area (i.e., east of Crossover Drive), the on-street parking in the Park is mostly unrestricted. However, some parking along Bowling Green Drive (between King Drive and Middle Drive East) has three-hour time limits on weekdays. Except for the Music Concourse area and the Kezar parking lot, all parking within the Park is free of charge. At the Music Concourse, there are about 200 metered parking spaces (paid parking on weekends and holidays only). Overall, there are approximately 3,100 parking spaces within the Park east of Crossover Drive, of which about 910 are not accessible on Sundays due to the roadway closures. The parking occupancy of the available spaces is substantially higher on Sundays, reflecting the decreased supply within the Park. In addition, there is a tour bus parking lot, west of the Band Shell, with capacity for 10 to 12 tour buses.

PEDESTRIANS AND BICYCLISTS

Sidewalks and pedestrian paths are provided throughout much of Golden Gate Park and the surrounding streets. Along Kennedy Drive, Tea Garden Drive and King Drive adjacent to the Music Concourse, the sidewalks and paths are generally 8 to 15 feet wide, whereas the sidewalks along the Eighth and Tenth Avenue entrances to the Park are only 4 to 6 feet wide. At the southern Ninth Avenue entrance, the west and east paths are 4 to 6 feet wide. There are three pedestrian tunnels at the northeast, southeast and southwest end of the Music Concourse that allow pedestrians and bicyclists to cross under Tea Garden Drive and Academy Drive.

Overall, pedestrian conditions are generally acceptable throughout the Park. The sidewalks, paths and crosswalks are able to accommodate typical pedestrian levels. At the intersections of Kennedy/Tea Garden/Academy and Kennedy/Eighth, however, the configuration of the intersections result in the potential for conflicts between pedestrians and vehicles. At both of these "T" intersections, one of the Kennedy Drive approaches does not stop. As such, it can

be difficult for pedestrians to cross the entire right-of-way. In addition, the narrow sidewalks along the Eighth and Tenth Avenue entrances to the Park somewhat impede pedestrian travel.

There are several signed bicycle routes in and around Golden Gate Park in the vicinity of the Music Concourse. These include east-west routes on Cabrillo Street (#20), Kennedy Drive/Panhandle (#30) and Page Street (#32), and north-south routes on Arguello Boulevard/Conservatory Drive/Bowling Green Drive/Sixth Avenue (#65), 16th Avenue (#69) and 23rd Avenue/20th Avenues (#75). In addition, there are several connector routes between the major north/south and east/west routes, including the #330, #765 and #365. Within the Park, the bicycle routes are either exclusive paths or along the streets. In the vicinity of the Music Concourse, no signed bicycle routes or paths are provided along King Drive, Middle Drive East, Stow Lake Drive, Academy Drive or Tea Garden Drive.

In general, bicycle conditions are acceptable throughout the Park and on the nearby streets. Most of the streets have sufficient right-of-way to allow bicyclists and vehicles to share the roadway. Inside the Park, bicyclists sometimes use the pedestrian paths, which can result in some conflicts between bicycles and pedestrians.

Several streets within the Park are closed to vehicular traffic on Sundays, including Kennedy Drive between Kezar Drive and Transverse Drive, Conservatory Drive East and West, Eighth and Tenth Avenues between Fulton Street and Kennedy Drive, and Bowling Green Drive between Kennedy Drive and Middle Drive East. On these days, pedestrians, bicyclists, rollerbladers and others share the street right-of-way.

IMPACTS

SIGNIFICANCE CRITERIA

Intersections

The operational impact on signalized intersections is considered significant when project-related traffic causes the level of service to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F. For the purpose of this report, the operational impact on

unsignalized intersections is considered significant when project-related traffic causes the level of service to deteriorate from LOS D or better to LOS E or F at more than one approach. The project may result in significant adverse impacts at intersections that operate at LOS E or F under Existing condition depending upon the magnitude of the project's contribution to the worsening of the average delay per vehicle. In addition, the project would have a significant adverse effect if it would cause major traffic hazards or contribute considerably to cumulative traffic increases that would cause deterioration in levels of service to unacceptable levels.

Parking

Parking supply is not considered to be a part of the permanent physical environment in San Francisco.⁸ Parking conditions are not static, as parking supply and demand vary from day to night, day to day, month to month, etc. Hence, the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel. Therefore, parking deficits are considered to be social effects, rather than impacts on the physical environment as defined by CEQA.

Parking deficits may be associated with secondary physical environmental impacts, such as increased traffic congestion at intersections, air quality, or noise effects caused by congestion. However, as noted above, in the experience of San Francisco transportation planners, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit, taxis, bicycles or travel by foot) and the relatively dense patterns of urban development, may induce drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service, in particular, would be in keeping with the City's "Transit First" policy.

Additionally, regarding potential secondary effects, cars circling and looking for a parking space in areas of limited parking supply is typically a temporary condition, often offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts which may result from a shortfall in parking in the vicinity of the proposed project would likely be minor and difficult to predict at a specific intersection.

Thus, a parking shortage is not considered to be a permanent condition and is also not considered to be a physical environmental impact even though it is understood to be an inconvenience to drivers. Therefore, the creation of or an increase in parking demand resulting from a proposed project that cannot be met by existing or proposed parking facilities would not itself be considered a significant environmental effect under CEQA. In the absence of such physical environmental impacts, CEQA does not require environmental documents to propose mitigation measures solely because a project is expected to generate parking shortfalls.

Transit

The project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in operating costs such that significant adverse impacts in transit service levels could result. With the MUNI and regional transit screenlines analyses, the project would have a significant effect on the transit provider if project-related transit trips would cause the capacity utilization standard to be exceeded during the weekday PM peak hour.

Pedestrians and Bicyclists

The project would have a significant effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas. The project would have a significant effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.

Construction

Construction-related impacts generally would not be considered significant due to their temporary and limited duration.

METHODOLOGY

To account for the occupancy of the New deYoung Museum, which is currently undergoing construction and is anticipated to open in mid-2005, prior to the occupancy of the proposed CAS project, a Baseline condition was established which includes travel demand associated with the New deYoung Museum. In addition, to evaluate the effects of the project and the proposed Golden Gate Park Concourse Authority (GGPCA) Underground Parking Facility, an additional Baseline plus Project plus Underground Parking Facility analysis was performed. To account for planned changes to the transportation network and general increases in traffic volumes in the study area, future 2015 Cumulative conditions were also developed. The analysis of these scenarios are presented below.

Trip Generation

The trip generation of the proposed CAS was based on the anticipated attendance and staffing at the new facility. In addition, as the current CAS was open at the time the existing traffic and parking conditions were surveyed, the net-new travel demand was determined (i.e., the travel demand associated with the existing CAS was subtracted from the travel demand estimated for the proposed CAS).

Travel demand associated with new CAS was based on historical attendance, existing travel characteristics and anticipated future attendance. From 1999 to 2002, annual attendance at the CAS was about 800,000 visitors, with an average Saturday attendance of about 2,480 visitors and an average Sunday attendance of about 2,260 visitors. The CAS has estimated a future average annual attendance of 1,400,000 visitors, which would represent a net-new attendance of about 600,000 visitors over existing levels. The potential future 80,000 gsf collections growth space would be intended to address primarily collections, and would not generate substantial additional visitors. Therefore, the effects of expansion space would be within the scope of the transportation analysis and is not separately discussed.

Based on historical patterns, the proposed project would have additional attendance of about 1,865 visitors on Saturdays and 1,705 visitors on Sundays. To reflect the variation in

attendance levels from month to month, the average attendance plus one standard deviation was used to develop the trip generation rates for the existing CAS and the proposed project to reflect the variability in attendance levels. Overall, the 600,000 net-new annual visitors would represent an increase of about 4,370 daily person-trips on Saturdays and 3,995 daily person-trips on Sundays, as shown in Table 4.

To estimate the peak hour of activity at the CAS and the ratio of inbound and outbound trips during the peak hour, doorway counts were obtained from other cultural institutions in San Francisco, such as the deYoung Museum. These counts identified the midday peak hour of activity was between 2:00 and 3:00 PM, during which approximately 17 percent of the daily trips occurred. During this peak hour, approximately 52 percent of the trips were inbound and 48 percent were outbound. Using these ratios, on Saturdays, the CAS would generate approximately 730 net-new midday peak hour person-trips (380 inbound and 350 outbound), and on Sundays, approximately 665 net-new midday peak hour person-trips (345 inbound and 320 outbound), as shown in Table 5.

TABLE 4
DAILY ATTENDANCE AND TRIP GENERATION FOR
EXISTING AND PROPOSED CAS

Day	Existing ¹	Proposed Project ²	Net-New Person-Trips
Attendance			
Saturday	2,480	4,345	1,865
Sunday	2,260	3,965	1,705
Trip Generation			
Saturday	5,910	10,280	4,370
Sunday	5,450	9,445	3,995

Source: California Academy of Sciences; Wilbur Smith Associates

Notes:

¹ Based on attendance data for fiscal years 1999/2000, 2000/2001 and 2001/2002, with an average annual attendance of about 800,000 visitors.

² Based on an average annual attendance of about 1,400,000 visitors.

TABLE 5
PROPOSED PROJECT PERSON-TRIP GENERATION (NET-NEW VISITORS)

Day	Daily Person-Trips	Midday Peak Hour Person-Trips			Total
		Inbound	Outbound		
Saturday	4,370	380	350	730	
Saturday	3,995	345	320	665	

Source: California Academy of Sciences; Wilbur Smith Associates

Currently, the CAS has about 80 employees/volunteers on weekends. With the proposed project, the CAS anticipates an increase of about 13 staff members on weekends. Since CAS staff typically arrive at the facility in the morning and leave in the evening, they do not travel during the peak hours; thus, the additional trips associated with the staff were not included in the trip generation (but were included in the parking demand).

Mode Split

The mode split (percentage of visitors who drive, take transit, walk or use other means to travel to and from the proposed project) was based on data provided by the Corporation of the Fine Arts Museums, the California Academy of Sciences, and the San Francisco Planning Department's *Transportation Impact Analysis Guidelines*.⁹ Overall, about 66 percent of the trips would be by auto, eight percent by transit, 18 percent by walk and eight percent by other modes. Based on visitation surveys conducted by the Academy, there would be an average of three visitors per vehicle. As a result, the new CAS would generate about 160 new vehicle trips during the Saturday midday peak hour and 145 new vehicle trips during the Sunday midday peak hour.

Trip Distribution/Assignment

Based on information in the *Transportation Impact Analysis Guidelines*, the Corporation of the Fine Arts Museums and the California Academy of Sciences, about 15 percent of the new trips generated by the proposed project would come to and from areas within San Francisco, about 53 percent to and from the Bay Area (including the East Bay, North Bay and South Bay) and 32 percent from outside the region. Those distribution patterns were the basis for assigning

the new trips to local streets in the study area. In general, most of those trips were assigned to the major roadways connecting Golden Gate Park to points north, east and south, including Park Presidio Boulevard, Geary Boulevard, Fulton Street, Fell/Oak Streets and Nineteenth Avenue, with some trips also assigned to the minor connecting roadways. The vehicle trips destined to and from the CAS were assigned to parking locations within the Park and to the north, east and south of the Park based on the information on parking location of visitors to the CAS and the number of available spaces during the Saturday midday and Sunday midday peak analysis periods.

Parking Demand

The parking demand generated by the new CAS employees and visitors was estimated for the Saturday and Sunday midday periods. The employee parking demand (long-term) was based on the number of new staff, and the mode split and vehicle occupancy factors. The visitor parking demand (short-term) was based on the number of daily net-new vehicle trips and the hourly attendance patterns. Overall, the CAS would have a new parking demand of about 187 spaces during the Saturday midday peak hour and about 171 spaces during the Sunday midday peak hour.

Loading Demand

Freight delivery and service vehicle demand was estimated based on CAS information. Currently, the existing CAS has about 15 to 25 deliveries per day, with an average of 20 deliveries per day, including mail room, museum store, café and general deliveries. Most deliveries occur with small trucks and vans, with about one semi-trailer truck delivery per month. Although the proposed project would increase the space and the attendance, the CAS does not anticipate that the number of deliveries would substantially increase.

To estimate the number of loading spaces necessary to accommodate these deliveries, loading space demand rates from the *Transportation Impact Analysis Guidelines* were used.¹⁰ It was estimated that the CAS would have a demand for 1.9 loading spaces on average, with a demand for 2.3 spaces during the peak hour of loading activities.

BASELINE CONDITIONS

Baseline conditions provide a scenario from which to assess the additive effects of the proposed project. Baseline conditions in this analysis account for the travel demand and parking demand associated with the New deYoung Museum now under construction. The New deYoung Museum is anticipated to have an annual attendance of 600,000 visitors. Initial attendance would likely be higher, but would be expected to level off after the first year of operations. Accordingly, a stabilized attendance number was used.¹¹ The travel demand and parking demand for the New deYoung Museum was based on the New deYoung Museum EIR.

During the Saturday midday peak hour, the New deYoung was estimated to generate about 434 vehicle trips (226 inbound and 208 outbound), with a parking demand for about 507 spaces (including staff and visitors). During the Sunday midday peak hour, the New deYoung was estimated to generate about 400 vehicle trips (208 inbound and 192 outbound), with a parking demand for about 468 spaces (including staff and visitors). These new vehicle-trips were added to the local and regional roadway network and the additional parking demand was assigned to the available parking supply within the Park and the study area to the north, east and south of the Park.

Traffic

Table 6, on p. 57 presents the Baseline intersection conditions for the Saturday midday peak hour and Sunday midday peak hour. The addition of the new vehicle trips associated with the New deYoung would not substantially affect the intersection operating conditions during the two analysis periods. In general, traffic operating conditions would be similar to existing conditions; however, there would be increases in the average delay per vehicle at most of the study intersections.

Parking

Table 7 on p. 58 presents the Baseline parking conditions for the Saturday midday peak hour and Sunday midday peak periods. With the additional parking demand associated with

the New deYoung, parking occupancy in the study area would increase from 86 percent to 91 percent during the Saturday midday, and from 91 percent to 97 percent during the Sunday midday. With these conditions, parking would become very difficult to find, and parkers may need to seek parking further away, outside the study area.

BASELINE PLUS PROJECT CONDITIONS

In this scenario, project-related trips are added to the Baseline conditions to determine the additive effects of the new CAS. As discussed previously, the proposed project would generate approximately 730 net-new person-trips and 160 net-new vehicle trips during the Saturday midday peak hour, and 665 net-new person-trips and 145 net-new vehicle trips during the Sunday midday peak hour. In addition, the proposed project would have a new parking demand of about 187 spaces during the Saturday midday peak hour and about 171 spaces during the Sunday midday peak hour, which includes the parking demand for both new visitors and staff.

Traffic Impacts

The vehicle trips destined to and from the CAS were assigned to parking locations within the Park and to the north, east and south of the Park based on the information on parking location of visitors to the CAS and the number of available spaces during the Saturday midday and Sunday midday peak analysis periods. As shown on Table 6, under the Baseline plus Project conditions, all study intersections would operate with similar conditions to the Baseline conditions. In general, the addition of project-generated traffic would result in minor changes to the average vehicular delay at the study intersections, usually less than two seconds per vehicle. The project would not result in significant traffic impacts during the Saturday midday and Sunday midday peak hours.

Parking Impacts

The proposed project would provide 15 parallel parking spaces along the driveway in the below-grade loading dock area. These spaces would be designated for service vehicles and CAS vehicles, and therefore would not be available for visitors and staff. The proposed

TABLE 6
BASELINE AND BASELINE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

Intersection	Baseline						Baseline Plus Project					
	Saturday Midday			Sunday Midday			Saturday Midday			Sunday Midday		
	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
Cabrillo/Park Presidio	17.1	B	17.4	B	17.2	B	17.5	B	17.5	B	17.5	B
Cabrillo/Tenth ²	9.8	A (eb)	9.8	A (wb)	10.0	B (eb)	9.9	A (wb)	9.9	B (eb)	10.2	B (eb)
Cabrillo/Eighth ²	11.0	B (nb)	10.1	B (eb)	11.3	B (nb)	10.2	B (nb)	10.2	B (nb)	10.2	B (nb)
Park Presidio/Fulton	29.7	C	29.9	C	29.9	C	30.1	C	30.1	C	30.1	C
Fulton/Tenth	16.3	B	17.0	B	16.5	B	17.4	B	17.4	B	17.4	B
Fulton/Eighth	16.3	B	15.3	B	16.6	B	15.4	B	15.4	B	15.4	B
Fulton/Arguello	14.6	B	35.1	D	15.0	B	36.2	D	36.2	D	36.2	D
Fulton/Stanyan	73.9	E	>80	F	76.3	E	>80	F	>80	F	>80	F
Kennedy/Stanyan	19.4	B	20.7	C	19.6	B	20.8	C	20.8	C	20.8	C
King/Crossover	36.1	D	37.4	D	36.7	D	38.0	D	38.0	D	38.0	D
Lincoln/Nineteenth	29.6	C	20.3	C	30.3	C	20.5	C	20.5	C	20.5	C
Ninth/Lincoln	28.2	C	14.0	B	29.0	C	14.1	B	14.1	B	14.1	B
Ninth/Irving	34.2	C	27.7	C	35.0	D	28.2	C	28.2	C	28.2	C
Kennedy/Tenth ²	13.3	B (eb)	-	-	14.1	B (eb)	-	-	14.1	B (eb)	-	-
Kennedy//Academy/Tea Garden ²	14.6	B (wb)	-	-	14.8	B (wb)	-	-	14.8	B (wb)	-	-
Kennedy/Eighth ²	11.6	B (wb)	-	-	11.8	B (wb)	-	-	11.8	B (wb)	-	-
Kennedy/Middle Drive East ²	17.3	C (wb)	-	-	18.4	C (wb)	-	-	18.4	C (wb)	-	-
Kennedy/Kezar ²	>50	F (eb)	-	-	>50	F (eb)	-	-	>50	F (eb)	-	-
King/Tea Garden ²	22.8	C (sb)	13.1	B (eb)	23.5	C (sb)	13.7	B (eb)	13.7	B (eb)	13.7	B (eb)
King/Academy ²	9.1	A (eb)	8.3	A (eb)	9.1	A (eb)	8.4	A (eb)	8.4	A (eb)	8.4	A (eb)
King/Middle Drive East ²	17.5	C (sb)	12.7	B (sb)	18.3	C (sb)	13.3	B (sb)	13.3	B (sb)	13.3	B (sb)
Middle Drive East/Bowling Green ²	8.1	A (wb)	7.5	A (nb)	8.1	A (wb)	7.5	A (nb)	7.5	A (nb)	7.5	A (nb)
King/Kezar	8.0	A	11.2	B	8.1	A	11.7	B	11.7	B	11.7	B

Source: Wilbur Smith Associates

Notes:

¹ Delay presented in seconds per vehicle.

² Unsignalized intersection - LOS and delay presented for worst approach. * = indicates that a second approach also operates at LOS E/F.

project would have a total parking demand for about 187 spaces during the Saturday midday period and 171 spaces during the Sunday midday period (including both visitor and staff parking demand). Since the proposed project would not provide any visitor/staff parking, it would not be able to accommodate its parking demand for 187 spaces during the Saturday midday peak hour and 171 spaces during the Sunday midday peak hour. As such, the proposed project would have a parking shortfall of about 187 spaces during the Saturday midday period and 171 spaces during the Sunday midday period. Table 7 presents the parking analysis for the Saturday midday period and Sunday midday period.

TABLE 7
BASELINE AND BASELINE PLUS PROJECT PARKING CONDITIONS

Location	Baseline		Baseline Plus Project	
	Saturday Midday	Sunday Midday	Saturday Midday	Sunday Midday
North of Park				
Supply	2,137	2,137	2,137	2,137
Occupancy	1,859	2,061	1,914	2,114
% Occupied	87%	96%	90%	99%
East of Park				
Supply	1,404	1,404	1,404	1,404
Occupancy	1,328	1,358	1,332	1,376
% Occupied	95%	97%	95%	98%
South of Park				
Supply	2,317	2,317	2,317	2,317
Occupancy	2,171	2,262	2,183	2,285
% Occupied	94%	98%	94%	99%
Within East Park				
Supply	3,095	2,184	3,095	2,184
Occupancy	2,817	2,107	2,933	2,184
% Occupied	91%	96%	95%	100%
Total Study Area				
Supply	8,953	8,042	8,953	8,042
Occupancy	8,175	7,787	8,362	7,959
% Occupied	91%	97%	93%	99%

Source: Wilbur Smith Associates

Note:

Parking study area generally bounded by Balboa Street to the north, Funston Avenue and Crossover Drive to the west, Judah Street and Parnassus Avenue to the south, and Cole Street and Stanyan Boulevard to the east.

As shown on Table 7 during the Saturday midday period, parking occupancy in the study area would increase from 91 percent to 93 percent. During the Sunday midday period, parking occupancy in the study area would increase from 97 percent to 99 percent.

As previously noted, parking deficits or lack of available parking spaces are not considered to be a significant impact of a project. However, in some situations with severe parking shortfalls, the secondary effects resulting from constrained parking conditions, such as the effect of drivers circling for parking or the increased traffic congestion at intersections, may be considered a significant impact.

With the Baseline plus Project parking conditions, parking would be very difficult to find in the study area and there would be competition for spaces among neighborhood residents, retail/commercial patrons and Park users. As a result, drivers would likely park outside the study area (further north or south of the Park, or within in the western portion of the Park), switch to other modes of travel or change their travel patterns (i.e., visit the Park earlier or later in the day to avoid the peak parking periods).

Drivers circulating for parking within the Park and the surrounding neighborhoods may result in an increase in traffic volumes and congestion at intersections, including delays to traffic flow and MUNI bus operations. In addition, parking occupancies outside the study area would likely increase, and there would be the increased potential for illegal parking. As the available parking supply within the Park and the surrounding neighborhoods is not concentrated in one location, the new vehicle trips generated by the proposed project would be distributed throughout the study area. Therefore, there would not be a substantial increase in traffic volumes along most streets in and around the Park. Because these activities are temporary and difficult to predict, they cannot be reliably quantified. Therefore, it is not anticipated that the proposed project would have significant secondary parking impacts.

It should be noted that the CAS currently provides transit information on their phone system and on their website, including directions to the facility via transit from San Francisco, North Bay, South Bay and East Bay, plus transit agency links and phone numbers. In addition, visitors currently receive discounts on their admission for taking MUNI or riding a bicycle to

the CAS. It is anticipated that these programs would continue with the proposed project. In addition, the proposed project would provide ample bicycle parking spaces, which would facilitate bicycle use by employees and visitors. Additional improvement measures have been identified to help reduce the number of visitors that would use auto to access the new CAS. These measures are detailed in Chapter IV, Mitigation Measures. In combination, the existing and proposed transit/bicycle programs would help to reduce the number of visitors that would use autos and therefore would reduce the potential for additional effects to traffic, parking and transit operations.

For the reasons described above, the proposed project would not be considered to have significant secondary parking impacts.

San Francisco Planning Code

The *City Planning Code* would require 142 off-street parking spaces for the proposed CAS.¹² As the proposed project would not provide any visitor parking (the 15 spaces to be provided would be for CAS-only vehicles), it would not meet the *Planning Code* requirement. The CAS would seek a variance to the *Planning Code* requirement.

Transit Impacts

The proposed project would generate about 55 net-new transit trips (30 inbound and 25 outbound) during the Saturday midday peak hour and 50 net-new transit trips (25 inbound and 25 outbound) during the Sunday midday peak hour. These trips would take one of the nearby MUNI bus or N-Judah lines and may transfer to other MUNI lines or regional transit providers. Based on recent field observations, it was estimated that the six MUNI bus lines and the N-Judah light rail line that operate in the vicinity of Golden Gate Park currently have capacity available during the Saturday midday and Sunday midday that could accommodate the trips generated by the CAS. As these MUNI lines are within walking distance of the CAS, not all transit riders would need to take the 44-O'Shaughnessy bus line that operates along Academy Drive and Tea Garden Drive adjacent to the project site to connect to other lines on Fulton Street, Lincoln Way or Irving Street.

The proposed project would generate approximately 160 net-new vehicle trips during the Saturday midday peak hour and 145 net-new vehicle trips during the Sunday midday peak hour; it is not anticipated that these additional vehicles would substantially affect operations of the MUNI 44-line within Golden Gate Park or the other MUNI bus lines and light rail lines in the area. As the available parking supply within the Park and the surrounding neighborhoods is not concentrated in one location, the new vehicle trips generated by the proposed project would be distributed throughout the study area. Therefore, there would not be a substantial increase in traffic volumes along most streets in and around the Park.

Additional vehicle traffic along Kennedy Drive and Ninth Avenue may result in increased delay to MUNI 44-O'Shaughnessy line operations, particularly at the intersections of Ninth/Lincoln and Ninth/Irving. However, the proposed project would only add about 20 vehicles during the Saturday midday peak hour and 30 vehicles during the Sunday midday peak hour to King Drive, and would add fewer than 10 vehicles during the Saturday midday and Sunday midday peak hours to Ninth Avenue (less than a 2.0 percent increase in traffic volumes on both streets). The addition of those vehicle trips would result in an average increase in delay of less than four seconds per vehicle in both the northbound and southbound directions (as estimated from the intersection level of service calculations). As a result, the proposed project would not result in substantial increases in the delays to transit service.

Pedestrian Impacts

Pedestrian trips generated by the CAS would include walking trips to and from the new CAS (i.e., walk as primary mode), plus walk trips to and from parking spaces, local and regional transit operators, and other uses within the Park. The majority of the net-new person-trips generated by the proposed project would be pedestrian trips in the vicinity of the project site. It is anticipated that these new pedestrian trips could be accommodated on the existing sidewalks and pedestrian paths adjacent to the project site and would not substantially affect the current sidewalk or crosswalk conditions. The basic circulation pattern on the site would be retained, with pedestrian access around the CAS perimeter.

Primary access to the new CAS would continue to be from Academy Drive. A plaza area would be provided in front of the entrance, which would also contain a ticket booth, an entrance to the proposed Underground Parking Facility and bicycle parking. A passenger drop-off zone for taxis, tour buses and private autos would be provided along Academy Drive, along with a bus stop and bus shelter for the MUNI 44-O'Shaughnessy bus line. Secondary access would be provided from Middle Drive East via a pathway, and a passenger drop-off zone would be established along Middle Drive East adjacent to the project site. In addition, pedestrian pathways would be provided on either side of the proposed project, which would connect Middle Drive East to Academy Drive. If the GGPAC Projects were implemented, there would be other surface improvements on Music Concourse area roadways, such as removal of surface parking, narrowing of roadways, new landscaping and pedestrian paths (discussed below under Baseline Plus Project Plus Underground Parking Facility) that would further enhance pedestrian conditions.

Bicycle Impacts

The CAS would provide 11 Class I and Class II bicycle spaces on site, plus additional Class II spaces for employees and visitors. These spaces are proposed to be located near the Academy Drive and Middle Drive East entrances. The exact number and location of these spaces is pending further study and coordination with the other Music Concourse area projects. In addition, the CAS would provide four showers and eight clothes lockers for CAS staff, to be located in the basement of the CAS. The *City Planning Code* would require 11 bicycle spaces, four showers and eight clothes lockers.¹³ The CAS would meet the *Planning Code* requirements.

The CAS is located near several major bicycle routes and is within easy bicycling distance of a large portion of San Francisco residents. As such, it is anticipated that there would be some bicycle trips generated by the proposed project. With the current traffic levels on the adjacent streets, bicycle travel generally occurs without major impediments or safety problems.

Although the CAS would result in an increase in the number of vehicles and bicyclists in the vicinity of the project site, this increase would not be substantial enough to affect bicycle

travel conditions or safety in the area. The GGPCA Projects transportation improvements, if implemented, would also be expected to improve bicycle conditions.

Loading Impacts

The proposed project would provide an off-street below-grade loading area, approximately 56 feet wide by 82 feet long (the loading area would be open, and therefore the vertical clearance cannot be determined). At the rear of the loading area, a raised open platform for storage and receiving would be provided, which would be about 12 feet deep and extend the length of the loading area. In addition, the loading area would provide space for up to three vehicles, including space for two small trucks/vans and one semi-truck.

As discussed above, it is anticipated that the CAS would have about 15 to 25 deliveries per day, with an average of 20 deliveries per day. In addition, it was estimated that there would be a demand for less than two loading spaces on average, and a demand for less than three loading spaces during the peak hour of loading activities. The proposed loading supply would be sufficient to meet anticipated demand.

San Francisco Planning Code

The *City Planning Code* would require the proposed project to provide two off-street loading spaces.¹⁴ The proposed project would provide three off-street loading spaces, and would meet the *Planning Code* requirement.

Passenger/Bus Loading

The reconfiguration and reconstruction of Academy Drive and Tea Garden Drive is described in the Draft Concourse Special Area Plan of the *Golden Gate Park Master Plan*.¹⁵ The Special Area Plan calls for the reconstruction of Academy Drive and the creation of passenger loading bays along the eastern side of Academy Drive, adjacent to the project site. Currently, Academy Drive is about 40 feet wide with two travel lanes with on-street parking on one side of the street. The proposed Special Area Plan would create one 20-foot wide travel lane, would widen the sidewalks and would establish two passenger loading bays in front of the project site. One bay would accommodate the relocated bus stop for the MUNI

44-O'Shaughnessy bus line, and the other bay would accommodate passenger pick-up and drop-off space for private vehicles, taxis and tour/school buses. As noted above, implementation of the GGPAC Projects would also create surface roadway and landscaping improvements.

Three types of groups that visit the existing CAS by bus are anticipated to continue with the proposed project: school groups, camp groups and tour groups. These group visitors and their loading requirements are described below.

School groups visit the CAS throughout the school year (October through June), Tuesday through Friday. On average, there are about 17 school groups per day, with 30 groups per day during the peak months (April and May). School groups typically have about 45 students during the non-peak months and 75 student during the peak months. Approximately half of the school groups travel by bus, with the remainder traveling by MUNI and private vehicles. Overall, there are about 13 buses per day during the non-peak months and 42 buses per day during the peak months. School groups typically arrive at 10:00 AM and leave by 1:00 PM. Most of the groups (about 75 percent) make advance reservations, but the CAS is usually able to accommodate groups without reservations.

Camp groups visit the CAS throughout the summer. During these months, there are about three camp groups per day during the week, and typically arrive at 10:00 AM and leave by 1:00 PM. These groups typically have about 50 visitors and travel by tour bus.

Tour groups visit the CAS throughout the year. On average, there are about two tour groups per month, with four groups per month during the peak months (April, July and August).

Overall, there is an average of 13 buses per day between October and March, 42 buses per day during April and May and three buses per day between June and September. All tour/school buses are directed to park behind the Band Shell, in the tour bus parking lot.

The CAS anticipates that the number of school groups and camp groups would remain constant with the proposed project. However, there would likely be a minor increase in tour groups. Based on the current operations of the school/camp/tour groups and the proposed

reconfiguration of Academy Drive with the Special Area Plan or implementation of Proposition J Concourse improvements, it is anticipated that any increases in bus activity could be accommodated without substantially affecting vehicular circulation on the surrounding roadways.

Construction Impacts

Construction of the proposed project is expected to take approximately four years. It is anticipated that construction activities would start in March 2004 and be completed in January 2007, with the facility re-opening to the public in January 2008, after a year of interior exhibit construction and installation/testing. Detailed plans for construction activities have not yet been completed; however, there would be five primary construction phases: abatement/demolition; excavation and shoring; concrete and structure; interior buildout; and move-in.

Construction-related activities would typically occur Monday through Friday from 6:00 AM to 3:30 PM. It is not anticipated that night and/or weekend construction would be necessary, however, if required, it would be scheduled in advance and would occur Monday through Friday from 3:30 to 10:00 PM and on Saturdays from 6:00 AM to 5:00 PM.

Construction staging would occur primarily within the site of the existing building and other areas identified in consultation with the Recreation and Parks Department as part of the coordinated construction plan. No important landscaping areas would be used for staging. It is not anticipated that any traffic lanes or sidewalks would need to be closed during the construction duration, except for the north sidewalk on Middle Drive East, between the west-most portion of the site to the east-most portion of the staging site. If additional sidewalk closures or temporary traffic lane closures were needed, the closures would be coordinated with the City in order to minimize the impacts on local traffic. In general, lane and sidewalk closures outside the park are subject to review and approval by the Department of Public Works (DPW) and the Interdepartmental Staff Committee on Traffic and Transportation (ISCOTT) with closures in the Park reviewed and approved by the Recreation and Parks Department. While not currently anticipated, it is possible that the bus stop for the MUNI 44-

O'Shaughnessy bus line located on Academy Drive may need to be relocated during construction of the proposed project. However, the relocation of this bus stop would be coordinated with the MUNI Street Operations/Special Events office.

During the construction period, there would be a flow of construction-related trucks into and out of the site, with an average of between 20 and 30 construction-related trucks per day. The maximum number of trucks per day would be 30, to occur during the concrete and structure phase of the construction. The impact of construction truck traffic would be a temporary lessening of the capacities of streets due to the slower movement and larger turning radii of trucks which may affect both traffic and MUNI operations.

It is anticipated that a majority of the construction-related truck traffic would use Nineteenth Avenue (from I-280/SR 1 from the Peninsula and South Bay) and I-80 (from the East Bay). For access to the site from the south, trucks would be routed from Nineteenth Avenue to King Drive to Middle Drive East, and would return via King Drive to Crossover Drive and Nineteenth Avenue. For access to the site from I-80, trucks would be routed to the Fell Street off-ramp to Kennedy Drive and Middle Drive East, and would return to I-80 via Middle Drive East, Kennedy Drive, Oak Street, Gough Street and the South Van Ness on-ramp. From the North Bay, construction-related traffic would use Park Presidio Boulevard to Cabrillo Street, Fourteenth Avenue, Fulton Street, Eighth Avenue, Kennedy Drive and Middle Drive East, and would return via Middle Drive East, King Drive, Crossover Drive to Park Presidio.

There would be between 50 and 200 construction workers per day at the project site. The maximum number of construction workers would occur during the interior buildout phase, when there would be up to 200 workers per day. Trip distribution and mode split data is not available for the construction workers. However, the addition of the worker-related vehicle or transit trips would not substantially affect the transportation conditions, as both the local traffic and transit network generally have available capacity.

Construction workers would cause a temporary parking demand, which would need to be addressed in coordination planning. The peak parking demand would occur during the interior buildout phase, when there would be a maximum parking demand for up to 200 spaces.

Carpooling or transit use by construction workers would reduce the maximum parking demand. Although the CAS would not be providing any construction worker parking, there is anticipated to be sufficient on-street parking available within the Music Concourse area, on Kennedy Drive and on King Drive. Since construction activities would be limited to weekdays, the parking demand from construction workers would not substantially affect parking conditions on weekends, but may affect parking conditions in the nearby neighborhood or for other Golden Gate Park attractions on weekdays. While the CAS is closed for reconstruction, additional parking for construction workers would be available in the Park because visitors to the Concourse area would likely decline.

Overlap with Construction Activities of Other Projects

Construction activities associated with the proposed project would overlap the construction phases of other projects in the vicinity of the site, particularly the ongoing construction of the New deYoung Museum and the anticipated construction of the proposed Underground Parking Facility. The construction activities associated with these projects would affect access, traffic operations, bus operation and pedestrian movements. In combination, the potential overlapping construction of these projects may result in temporarily increased congestion in the area, plus inconveniences to motorists, pedestrians, bicyclists and transit patrons.

The construction activity of the proposed project would overlap with the New deYoung and proposed Underground Parking Facility between March 2004 and January 2005 (a ten-month period), and overlap with the New deYoung move-in activities between February 2005 and June 2005 (a five month period). During the overlap, the number of construction trucks and worker parking would be anticipated to increase. It should be noted that between mid-2003 and early 2004, the construction of the proposed Underground Parking Facility would restrict access to the main Academy Drive entrance of the CAS. To reduce the combined effect of these construction impacts, each project sponsor would work with various departments of the City (Department of Parking and Traffic, MUNI, the Fire Department, etc.) to develop a detailed and coordinated plan that would address construction vehicle routing, traffic control and pedestrian movement adjacent to the construction area. See Chapter IV, Mitigation Measures, for further information.

Special Events Operations

The CAS currently holds special events throughout the year, including private parties, lectures and fundraisers. Generally, the small events draw between 20 and several hundred attendees and occur about 50 times a year. The large events, including fundraiser and “milestone” events, draw over 1,000 attendees and occur up to five times a year. Most events are scheduled during the weekday or weekend evenings, after the CAS has closed to the public.

As these events typically occur after the CAS closes (after 6:00 PM), there is usually parking available in the Music Concourse area and nearby Park roadways. In addition, traffic volumes in the vicinity of the Park are typically lower during the evenings than during the weekday PM peak hour or the weekday midday peak hours. The additional parking demand and vehicle trips associated with events at the CAS can be accommodated and not affect area-wide parking and traffic conditions.

With the proposed project, it is anticipated that the size, and frequency of the events would not substantially increase, and the event scheduling would remain similar. Therefore, special events at the new CAS would not result in any additional significant impacts.

Since these special events typically occur after the CAS closes, there is available parking in the Music Concourse area and nearby Park roadways. In addition, traffic volumes in the vicinity of the Park are typically lower during the evening period. As such, the additional parking demand and vehicle trips associated with events at the CAS would not substantially affect area-wide parking and traffic conditions.

Kennedy Drive Saturday Closure Assessment

The San Francisco Board of Supervisors is considering legislation to implement additional road closures within Golden Gate Park on Saturdays.¹⁶ The Saturday closure would include the following streets in the Park: Kennedy Drive between Kezar Drive and Eighth Avenue, Arguello Boulevard between Fulton Street and Kennedy Drive, Conservatory Drive East and West, and Bowling Green Drive between Kennedy Drive and Middle Drive East. No other changes to the roadway network are proposed. Environmental review of the proposed

Kennedy Drive closure has been completed; a Preliminary Mitigated Negative Declaration for the proposed closure was published on November 30, 2002 (Case No. 2001.1148E), and circulated for public review. The Negative Declaration was not appealed.

The effects of the Kennedy Drive Saturday closure on intersection operating conditions were analyzed for all Existing, Baseline and 2015 Cumulative scenarios.

The proposed closure of Kennedy Drive would result in one additional impact to intersection operating conditions during the Saturday midday peak hour with the new CAS and the New deYoung Museum: Fulton/Stanyan (LOS E to LOS F). This impact would be due to the diversion of vehicles from Kennedy Drive to Fulton Street on the northside of the Park. It should be noted that the impact at this location could be mitigated with improvements to the intersection as described in Chapter IV, Mitigation Measures, which include retiming of the intersection signal.

The proposed Saturday closure of Kennedy Drive was also identified to have significant traffic impacts with the other analysis scenarios. Under Existing conditions, the proposed closure would have a significant impact at the intersection of Fulton/Stanyan. Under Existing plus New deYoung plus new CAS plus Concourse Garage conditions, the proposed closure would have significant impacts at the intersections of Fulton/Stanyan and King/Middle Drive East. Under 2015 Cumulative without Concourse Garage conditions, the proposed closure would have significant impacts at the intersections of Fulton/Eighth, Fulton/Arguello and Fulton/Stanyan. Under 2015 Cumulative with Underground Parking Facility conditions, the proposed closure would have significant impacts at the intersections of Fulton/Arguello, Fulton/Stanyan and King/Middle Drive East.

All significant impacts of the Kennedy Drive Saturday closure could be mitigated, with the exception of Fulton/Stanyan under the 2015 Cumulative scenarios. At this location, when the Saturday closure is added to the 2015 cumulative conditions which consider the other Park projects, the previously identified mitigation measure would not improve operating conditions to acceptable levels. As a result, a monitoring program would be established (if and when unacceptable conditions are observed that could not be mitigated by other measures, the

Saturday closure of Kennedy Drive would be discontinued). It should be noted that the significant impacts at King/Middle Drive East could be mitigated by eliminating the STOP signs at the two King Drive approaches (so that only the Middle Drive East approach would be stopped). However, the elimination of STOP signs at the intersection may affect pedestrian circulation and safety. In addition, the significant impacts could also be mitigated with a new traffic signal. If it is determined that the elimination of STOP signs and the installation of a new traffic signal were not feasible, a monitoring program similar to the one planned for Fulton/Stanyan would need to be established.

In general, the closure of Kennedy Drive would result in increases in traffic volumes and vehicular delay along King Drive and the Music Concourse roadways, since north/south access would be restricted in the eastern portion of the Park. As a result, the MUNI 44-O'Shaughnessy travel times through this section of the Park would increase in both the northbound and southbound directions.

In addition, the proposed Kennedy Drive Saturday closure would decrease the number of vehicles parked within the Park during the Saturday midday by about 266 vehicles, and increase the number of vehicles parked north of the Park (an additional 184 vehicles), east of the Park (an additional 29 vehicles) and south of the Park (an additional 53 vehicles). The parking occupancy for the parking study area would be 98 percent north of the Park, 97 percent east of the Park, 98 percent south of the Park and 100 percent within the Park. Overall, study area parking occupancy would be 99 percent as compared to 93 percent without the proposed closure.

BASELINE PLUS PROJECT PLUS UNDERGROUND PARKING FACILITY CONDITIONS

For the Baseline Plus Project Plus Underground Parking Facility scenario, information on conditions with the Underground Parking Facility was based on the GGPCA Projects Draft EIR. The Underground Parking Facility was authorized with the passage of Proposition J in 1998, and planning work for the project is currently ongoing.¹⁷ The parking facility would contain about 800 parking spaces and would be developed underneath the Music Concourse

and Academy Drive/Tea Garden Drive. The parking entrances and exits would be located at the intersection of Fulton Street at Tenth Avenue and on Academy Drive (directly west of the CAS; see Figure 2). With the Underground Parking Facility, 800 on-street parking spaces throughout the Park (including the 200 spaces currently within the Music Concourse) would be eliminated.

The proposed Underground Parking Facility would change circulation on the following roadways in the Park: Tenth Avenue between Fulton Street and Kennedy Drive and the intersection of Kennedy Drive and Tenth Avenue would be eliminated; Academy Drive would be converted to two-way operation between King Drive and the parking facility ramp; and the intersection of King Drive and Academy Drive would be converted into an all-way STOP-controlled intersection.

The number of vehicle trips destined to and from the Underground Parking Facility was estimated assuming the parking facility would be fully occupied during the weekend midday peak, which would result in a conservative analysis of traffic impacts associated with the parking facility. The number of trips was based on the vehicle-trip generation with the New deYoung and the new CAS, plus trips associated with other parking within the Park. Overall, it was estimated that there would about 580 vehicle trips (300 inbound and 280 outbound) during both the Saturday midday and Sunday midday peak hours. The origin/destination patterns and the general assignment of the vehicle trips to and from the Underground Parking Facility were assumed to be similar to those for the New deYoung and new CAS, since the facility would primarily serve the Music Concourse area institutions and attractions.

The 800 surface parking spaces within the Park that would be eliminated (one surface space for each space in the parking facility), would include all parking spaces within the Music Concourse, plus spaces throughout the Park, including spaces removed for intersection improvements, safety improvements, traffic improvements and shuttle stops.¹⁸ It was assumed that 60 percent of these spaces (480 spaces) would be eliminated on roadways east of Crossover Drive and 40 percent (320 spaces) would be eliminated on roadways west of Crossover Drive. Of the 480 spaces to be removed in the eastern portion of the Park, it was assumed that all 200 spaces would be removed from the Music Concourse roadways and the

remaining 280 spaces would be removed within a one-quarter mile radius of the Music Concourse area.¹⁹ To account for these changes, the analysis reassigned vehicle trips and parking demand associated with the parking removal, and reassigned vehicle trips to account for the closure of Tenth Avenue.

The GGPCA Projects EIR also reviewed the implementation of a second phase of the project (Phase II). Phase II of the GGPCA Projects would include the construction of a underground roadway between Kennedy Drive at Eighth Avenue and Middle Drive East, and the closure of the connection between Kennedy Drive and the Music Concourse roadways (except for MUNI and emergency vehicle access). The purpose of these changes would be to divert north/south traffic from Tea Garden Drive and Academy Drive and into the Underground Through Street. Vehicle access to the Music Concourse roadways for pick-up and drop-off, tour buses and taxis would be restricted to a one-way loop connecting Academy Drive (northbound) and Tea Garden Drive (southbound) to King Drive. Phase II of the GGPCA Projects is currently an unfunded component of this project, and would require public funding sources to implement. Traffic impacts associated with Phase II of the GGPCA Projects are summarized below.

Traffic Impacts

Table 8 presents the Baseline plus Project plus Underground Parking Facility intersection operating conditions for the Saturday midday peak hour and Sunday midday peak hour. Under the Baseline plus Project plus Underground Parking Facility conditions (Phase I only), all study intersections would operate with similar conditions to the Baseline plus Project conditions. Operating conditions some of the study intersections would improve with the Underground Parking Facility, as a result of the elimination of on-street parking supply and changes in vehicle travel patterns.

To assess the impacts associated with Phase II of the GGPCA Projects, two additional scenarios were analyzed in the Golden Gate Park Concourse Authority Projects Transportation Study: Existing plus New deYoung plus new CAS plus Phase II of the GGPCA Projects, and

TABLE 8
INTERSECTION LEVEL OF SERVICE
BASELINE PLUS PROJECT PLUS
UNDERGROUND PARKING FACILITY CONDITIONS

Intersection	Saturday Midday		Sunday Midday	
	Delay ¹	LOS	Delay ¹	LOS
Cabrillo/Park Presidio	17.1	B	17.4	B
Cabrillo/Tenth ²	9.8	A (eb)	9.9	A (wb)
Cabrillo/Eighth ²	12.1	B (nb)	9.8	A (eb)
Park Presidio/Fulton	29.7	C	29.3	C
Fulton/Tenth	20.0	C	22.1	C
Fulton/Eighth	19.9	B	16.0	B
Fulton/Arguello	14.6	B	45.0	D
Fulton/Stanyan	74.5	E	>80	F
Kennedy/Stanyan	19.2	B	20.4	C
King/Crossover	35.4	D	33.4	C
Lincoln/Nineteenth	29.3	C	20.3	C
Ninth/Lincoln	29.8	C	14.2	B
Ninth/Irving	34.6	C	27.6	C
Kennedy/Tenth ²	-	-	-	-
Kennedy/Academy/Tea Garden ²	13.3	B (wb)	-	-
Kennedy/Eighth ²	16.6	C (sb)	-	-
Kennedy/Middle Drive East ²	14.9	B (wb)	-	-
Kennedy/Kezar ²	>50	F (eb)	-	-
King/Tea Garden ²	16.4	C (sb)	11.0	B (eb)
King/Academy ²	16.2	C (wb)	12.2	B (wb)
King/Middle Drive East ²	20.6	C (sb)	13.3	B (sb)
Middle Drive East/Bowling Green ²	7.9	A (wb)	7.5	A (nb)
King/Kezar	8.7	A	10.9	B

Source: Wilbur Smith Associates

Notes:

¹ Delay presented in seconds per vehicle.

² Unsignalized intersection – LOS and delay presented for worst approach. * = indicates that a second approach also operates at LOS E/F.

2015 Cumulative with Phase II of the GGPCA Projects. The intersection operating conditions were evaluated for the Saturday midday and Sunday midday peak hours, plus the weekday PM peak hour. During the Saturday midday and Sunday midday peak hours, the results of the intersection LOS analysis would be similar to the results with Phase I of the GGPCA Projects

under both scenarios. However, during the weekday PM peak hour, the new intersection of Kennedy/Eighth/Underground Through Street would operate at unacceptable conditions and would need to be signalized. With signalization, intersection operations would improve to LOS C during the weekday PM peak hour and LOS B during the Saturday midday peak hour. As a result, the new CAS in conjunction with Phase II of the GGPCA Projects, if implemented, would have no significant traffic impacts that are substantially different than with Phase I .

Parking Impacts

Table 9 presents the parking analysis for the Baseline plus Project plus Underground Parking Facility conditions for the Saturday midday period and Sunday midday period. As a result of the increase in parking supply within the eastern area of the Park with the proposed Underground Parking Facility, parking occupancy in the study area would decrease from Baseline plus Project conditions during both analysis periods. During the Saturday midday period, the overall parking occupancy would decrease from 93 percent to 90 percent; during the Sunday midday period, the overall parking occupancy would decrease from 99 percent to 93 percent. With the Underground Parking Facility, the increase in parking supply in the eastern area of the Park would result in a decrease in the number of drivers that would need to park outside the Park. As a result, the parking occupancy of the areas North, East and South of the Park would also decrease

Pedestrian Impacts

As part of the GGPCA Projects, improvements are planned to the pedestrian facilities in and around the Music Concourse area. In general, pedestrian conditions with the proposed project would benefit from the GGPCA Projects which are intended to create a pedestrian oasis in the Music Concourse area, while reducing the impact of automobiles in the Park.

Surface improvements proposed for the Music Concourse include: the width of Academy Drive and Tea Garden Drive would be reduced; lower speed limits would be posted; pedestrian circulation space in front of the deYoung and CAS would be increased; crosswalks would be clearly delineated; parking would be eliminated from the Music Concourse; and

passenger loading/unloading bays would be provided in front of the new CAS and the New deYoung. In addition, the GGPCA Projects would include the restriping and striping of crosswalks at about 100 locations throughout the Park to enhance pedestrian visibility and safety. Overall, these improvements would accommodate an increase in pedestrian travel and enhance the pedestrian environment.

TABLE 9
BASELINE PLUS PROJECT PLUS
UNDERGROUND PARKING FACILITY CONDITIONS

Location	Saturday Midday	Sunday Midday
North of Park		
Supply	2,137	2,137
Occupancy	1,769	1,924
% Occupied	83%	90%
East of Park		
Supply	1,404	1,404
Occupancy	1,321	1,312
% Occupied	94%	93%
South of Park		
Supply	2,317	2,317
Occupancy	2,150	2,200
% Occupied	93%	95%
Within East Park		
Supply	3,415	2,680
Occupancy	3,122	2,523
% Occupied	91%	94%
Total Study Area		
Supply	9,273	8,538
Occupancy	8,362	7,959
% Occupied	90%	93%

Source: Wilbur Smith Associates

Note:

Parking study area generally bounded by Balboa Street to the north, Funston Avenue and Crossover Drive to the west, Judah Street and Parnassus Avenue to the south, and Cole Street and Stanyan Boulevard to the east.

With the driveway to the Underground Parking Facility at Tenth/Fulton, pedestrian access into the Park at Tenth Avenue would be somewhat limited (the existing pathway on the west side of Tenth Avenue between Fulton Street and Kennedy Drive would remain) and the MUNI 5-Fulton bus stop on Fulton Street at Tenth Avenue would be relocated to 11th Avenue. As a result, some Park visitors may divert to the Eighth Avenue entrance and the number of pedestrians at the intersection of Fulton Street and Eighth Avenue would likely increase. Overall, these changes would not substantially affect pedestrian conditions.

The Underground Parking Facility ramp at Academy Drive would be designed such that the southern pedestrian sidewalk would continue along the south side of the driveway portal and to the open space in front of the CAS. A pedestrian walkway and a crosswalk across Academy Drive would be provided at the southern end of the plaza. Phase I would include rebuilding and retention of the northeast and southeast pedestrian tunnels between the Concourse Bowl and paths to the north and south. The southwest pedestrian tunnel is proposed to be retained as a route from the Bowl through the upper level of the parking facility to the Shakespeare Garden area. The GGPAC is considering a variant that would close that tunnel and provide a new pedestrian route on the surface from the Bowl to the Shakespeare Garden area. Overall, Phase I would maintain the existing pedestrian routes serving the Concourse area, and therefore would not substantially affect pedestrian circulation. With the Underground Parking Facility, there would be an increase in the parking supply in the Music Concourse area, which would increase the number of pedestrians that would travel to and from the area.

Bicycle Impacts

In general, bicycle conditions with the proposed project would benefit from the GGPAC Projects which are intended to reduce the impact of automobiles in the Park.

The Underground Parking Facility would provide a 46 Class II bicycle parking spaces (bicycle racks) in the upper level of the parking facility adjacent to the pedestrian access points, which would be at-grade with the Music Concourse. The surface improvements in the Music Concourse would reduce the number of vehicles on the Music Concourse roadways, which would facilitate and enhance bicycle travel. In addition, the removal of surface parking spaces

along roadways throughout the Park and at intersections would provide for additional right-of-way for bicycle travel. The elimination of curb parking would also reduce parking maneuvers and opening door conflicts which hinder bicycle travel.

Although the design of the surface improvements in the Music Concourse have not been completed, it is anticipated that the roadway width of Academy Drive and Tea Garden Drive would be reduced to provide one 14-foot travel lane and one 6-foot bicycle lane. The reduction in the roadway width would result in a reduction in the travel speed through the Music Concourse; in addition, the provision of a separate bicycle lane would improve bicycle conditions.

Special Events

The Underground Parking Facility, as currently planned, would be designed and operated to accommodate special events at the New deYoung and the new CAS. Staff of the Underground Parking Facility would coordinate operations with the institutions, so that special staffing arrangements and changes to the vehicular circulation would occur. To accommodate inbound traffic, the center lane of the Tenth Avenue driveway would be reversed to allow two lanes into the parking facility. Event patrons would pay a fixed parking fee upon entry, which would be collected by attendants. After events, the control gates at both the Tenth Avenue and Academy Drive driveways would be raised to allow patrons to freely exit the parking facility.

With the Underground Parking Facility, it is not anticipated that special events would substantially affect traffic conditions following an event. In general, traffic volumes in the vicinity of the Park are typically lower during the evening period, and vehicles exiting the event would be metered onto Fulton Street by the traffic signal at the intersection of Fulton/Stanyan. However, it may be necessary to have a parking control officer stationed at the intersection of King/Academy to direct and control exiting traffic (to ensure that vehicles do not block northbound Academy Drive traffic).²⁰

2015 CUMULATIVE CONDITIONS

Separate 2015 Cumulative conditions were developed with and without the Underground Parking Facility since the reconfiguration of the Park roadways and the concentration of parking supply with the proposed facility would substantially affect the future assignment of vehicles within the Park and the surrounding streets. By 2015, it is anticipated that there would be changes to the existing transportation network in the vicinity of the Music Concourse, which were included in the analysis of the 2015 Cumulative intersection operations.

The future 2015 Cumulative traffic volumes were based on the analysis conducted for the *Golden Gate Master Plan EIR*, and include growth rates to the Existing traffic volumes. A 1.0 percent per year increase in traffic volumes at the study intersections outside the Park, and a 0.5 percent per year increase at the study intersections within the Park were applied to the Existing traffic volumes to derive the future 2015 Cumulative volumes. Since these growth rates were applied to the existing intersection volumes, they would account for the additional vehicle trips generated by the New deYoung and the CAS. To account for the Underground Parking Facility (for the 2015 Cumulative with Underground Parking Facility scenario), the closure of Tenth Avenue and the removal of surface parking, adjustments were made to the traffic volumes to derive the 2015 Cumulative with Underground Parking Facility conditions.

In addition, the 2015 Cumulative conditions assume the changes to the existing transportation network in the vicinity of the Music Concourse as documented in the *Golden Gate Park Master Plan*, including the reconfiguration of the Kennedy/Kezar intersection, the closure of Waller Street and the closure of the Seventh Avenue entrance.²¹

Tables 10 and 11 present the Saturday midday and Sunday midday peak hour intersection operating conditions for the 2015 Cumulative without Underground Parking Facility and 2015 Cumulative with Underground Parking Facility scenarios, respectively. By 2015, there is anticipated to be a substantial increase in traffic volumes along the major streets outside the Park, including Park Presidio Boulevard/Crossover Drive, Fulton Street and Stanyan Street, and along Kennedy Drive and Kezar Drive/King Drive inside the Park. As a result, most of

the study intersections along these street would operate at LOS E or F during the two study periods.

TABLE 10
INTERSECTION LEVEL OF SERVICE
2015 CUMULATIVE WITHOUT
UNDERGROUND PARKING FACILITY CONDITIONS

Intersection	Saturday Midday		Sunday Midday	
	Delay ¹	LOS	Delay ¹	LOS
Cabrillo/Park Presidio	28.5	C	28.4	C
Cabrillo/Tenth ²	10.4	B (eb)	10.4	B (wb)
Cabrillo/Eighth ²	11.7	B (nb)	10.8	B (eb)
Park Presidio/Fulton	59.6	E	62.4	E
Fulton/Tenth	17.9	B	21.1	C
Fulton/Eighth	18.2	B	17.2	B
Fulton/Arguello	28.2	C	56.2	E
Fulton/Stanyan	>80	F	>80	F
Kennedy/Stanyan	22.7	C	25.6	C
King/Crossover	71.3	E	67.6	E
Lincoln/Nineteenth	65.2	E	46.4	D
Ninth/Lincoln	40.1	D	16.7	B
Ninth/Irving	54.7	D	46.1	D
Kennedy/Tenth ²	14.5	B (eb)	-	-
Kennedy/Academy/Tea Garden ²	15.0	B (wb)	-	-
Kennedy/Eighth ²	11.9	B (wb)	-	-
Kennedy/Middle Drive East ²	19.1	C (wb)	-	-
Kennedy/Kezar ²	>50	F (eb)	-	-
King/Tea Garden ²	26.5	D (sb)	14.2	B (eb)
King/Academy ²	15.5	C (eb)	13.2	B (eb)
King/Middle Drive East ²	18.5	C (sb)	13.8	B (sb)
Middle Drive East/Bowling Green ²	8.1	A (wb)	7.5	A (nb)
King/Kezar	8.3	A	11.7	B

Source: Wilbur Smith Associates

Notes:

¹ Delay presented in seconds per vehicle.

² Unsignalized intersection – LOS and delay presented for worst approach. * = indicates that a second approach also operates at LOS E/F.

TABLE 11
INTERSECTION LEVEL OF SERVICE
2015 CUMULATIVE WITH
UNDERGROUND PARKING FACILITY CONDITIONS

Intersection	Saturday Midday		Sunday Midday	
	Delay ¹	LOS	Delay ¹	LOS
Cabrillo/Park Presidio	27.8	C	27.7	C
Cabrillo/Tenth ²	9.6	A (eb)	10.7	B (wb)
Cabrillo/Eighth ²	14.2	B (nb)	10.6	B (eb)
Park Presidio/Fulton	59.6	E	60.2	E
Fulton/Tenth	23.3	C	39.9	D
Fulton/Eighth	22.0	C	16.8	B
Fulton/Arguello	15.6	B	54.2	D
Fulton/Stanyan	>80	F	>80	F
Kennedy/Stanyan	22.3	C	24.4	C
King/Crossover	70.6	E	63.2	E
Lincoln/Nineteenth	63.6	E	44.9	D
Ninth/Lincoln	38.5	D	17.0	B
Ninth/Irving	53.7	D	45.7	D
Kennedy/Tenth ²	-	-	-	-
Kennedy/Academy/Tea Garden ²	13.2	B (wb)	-	-
Kennedy/Eighth ²	18.0	C (sb)	-	-
Kennedy/Middle Drive East ²	15.2	C (wb)	-	-
Kennedy/Kezar ²	>50	F (eb)	-	-
King/Tea Garden ²	17.8	C (sb)	11.1	B (eb)
King/Academy ²	17.3	C (wb)	12.5	B (wb)
King/Middle Drive East ²	22.9	C (sb)	13.9	B (sb)
Middle Drive East/Bowling Green ²	8.0	A (wb)	7.5	A (nb)
King/Kezar	8.9	A	10.8	B

Source: Wilbur Smith Associates

Notes:

¹ Delay presented in seconds per vehicle.

² Unsignalized intersection – LOS and delay presented for worst approach. * = indicates that a second approach also operates at LOS E/F.

2015 Cumulative without Underground Parking Facility

During the Saturday midday peak hour, four of the 23 intersections would operate with unacceptable conditions (Park Presidio/Fulton, Fulton/Stanyan, King/Crossover, and Lincoln/Nineteenth), as compared to one intersection under Baseline and Baseline plus Project conditions (Fulton/Stanyan). During the Sunday midday peak hour, four of the 18 study intersections would operate with unacceptable conditions (Park Presidio/Fulton, Fulton/Arguello, Fulton/Stanyan and King/Crossover, as compared to one intersection under Baseline and Baseline plus Project conditions (Fulton/Stanyan).

2015 Cumulative with Underground Parking Facility

During the Saturday midday peak hour, four of the 22 intersections would operate with unacceptable conditions (the same four intersections as with the 2015 Cumulative without Underground Parking Facility conditions). During the Sunday midday peak hour, three of the 18 intersections would operate with unacceptable conditions (the same intersections as with the 2015 Cumulative without Underground Parking Facility conditions except the intersection of Fulton/Arguello).

CONTRIBUTION TO FUTURE CONDITIONS

While a project could have no significant project-related traffic impacts (as with the new CAS), a project could still have a significant impact if (1) a cumulative impact was identified, and (2) the project had a substantial contribution to that cumulative impact.

To assess the effect of project-related traffic changes on the 2015 Cumulative conditions, the proposed project's contribution to the 2015 Cumulative traffic volumes was determined. Two separate percent contributions were calculated: the project-related traffic change as a percentage of the change in traffic volumes between Baseline and 2015 Cumulative conditions, and the project-related traffic as a percentage of the total 2015 Cumulative traffic volumes. Tables 12 and 13 present the proposed project's percent contributions for the 2015 Cumulative

TABLE 12
 PROPOSED PROJECT'S PERCENT CONTRIBUTION
 2015 CUMULATIVE WITHOUT UNDERGROUND PARKING FACILITY CONDITIONS

Intersection	Saturday Midday			Sunday Midday		
	Contribution to Change from Baseline to 2015 Cumulative	Contribution to Total 2015		Contribution to Change from Baseline to 2015 Cumulative	Contribution to Total 2015	
		Cumulative	Contribution to Cumulative		Cumulative	Contribution to Cumulative
Cabrillo/Park Presidio	2.2%	0.3%		1.9%	0.3%	
Cabrillo/Tenth	31.6%	3.1%		18.9%	2.1%	
Cabrillo/Eighth	32.3%	2.7%		18.2%	2.0%	
Park Presidio/Fulton	1.6%	0.2%		1.2%	0.2%	
Fulton/Tenth	10.9%	1.4%		4.6%	0.6%	
Fulton/Eighth	11.8%	1.3%		5.3%	0.6%	
Fulton/Arguello	18.1%	1.6%		7.8%	0.9%	
Fulton/Stanyan	10.8%	1.2%		6.7%	0.8%	
Kennedy/Stanyan	7.0%	0.9%		5.8%	0.9%	
King/Crossover	2.6%	0.3%		2.3%	0.3%	
Lincoln/Nineteenth	1.8%	0.3%		1.8%	0.2%	
Ninth/Lincoln	1.8%	0.2%		2.6%	0.3%	
Ninth/Irving	3.1%	0.5%		3.9%	0.6%	
Kennedy/Tenth	51.8%	3.6%		—	—	
Kennedy/Academy/Tea Garden	40.3%	2.1%		—	—	
Kennedy/Eighth	38.0%	2.3%		—	—	
Kennedy/Middle Drive East	43.3%	2.9%		—	—	
Kennedy/Kezar	6.8%	0.9%		5.7%	0.9%	
King/Tea Garden	33.4%	2.6%		42.3%	3.4%	
King/Academy	39.1%	2.0%		43.0%	3.4%	
King/Middle Drive East	41.5%	2.0%		41.9%	3.4%	
Middle Drive East/Bowling Green	45.3%	2.3%		26.9%	1.5%	
King/Kezar	9.8%	0.5%		55.2%	1.0%	

Source: Wilbur Smith Associates

Note: Intersections operating at unacceptable conditions (LOS E or F) under 2015 Cumulative scenarios are highlighted in bold.

TABLE 13
 PROPOSED PROJECT'S PERCENT CONTRIBUTION
 2015 CUMULATIVE WITH UNDERGROUND PARKING FACILITY CONDITIONS

Intersection	Saturday Midday		Sunday Midday	
	Contribution to Change from Baseline to 2015 Cumulative	Contribution to Total 2015 Cumulative	Contribution to Change from Baseline to 2015 Cumulative	Contribution to Total 2015 Cumulative
Cabrillo/Park Presidio	1.2%	0.2%	1.1%	0.1%
Cabrillo/Tenth	-14.5%	1.8%	8.0%	1.3%
Cabrillo/Eighth	0.0%	0.0%	0.0%	0.0%
Park Presidio/Fulton	0.9%	0.1%	0.8%	0.1%
Fulton/Tenth	15.9%	1.9%	7.6%	1.6%
Fulton/Eighth	5.3%	1.0%	9.2%	1.1%
Fulton/Arguello	14.3%	0.9%	9.6%	1.0%
Fulton/Stanyan	7.2%	0.7%	6.5%	0.7%
Kennedy/Stanyan	4.8%	0.6%	3.9%	0.5%
King/Crossover	1.4%	0.2%	1.4%	0.2%
Lincoln/Nineteenth	1.2%	0.1%	1.1%	0.1%
Ninth/Lincoln	1.6%	0.2%	1.5%	0.2%
Ninth/Irving	2.4%	0.4%	2.4%	0.4%
Kennedy/Tenth	-	-	-	-
Kennedy/Academy/Tea Garden	-0.3%	0.1%	-	-
Kennedy/Eighth	6.8%	0.5%	-	-
Kennedy/Middle Drive East	-14.4%	1.5%	-	-
Kennedy/Kezar	5.7%	0.7%	4.4%	0.6%
King/Tea Garden	-29.1%	0.9%	-6.1%	1.4%
King/Academy	27.2%	3.6%	48.1%	4.5%
King/Middle Drive East	24.0%	3.0%	50.1%	3.6%
Middle Drive East/Bowling Green	-35.7%	2.7%	0.0%	0.0%
King/Kezar	9.9%	0.5%	55.7%	0.6%

Source: Wilbur Smith Associates

Note: Intersections operating at unacceptable conditions (LOS E or F) under 2015 Cumulative scenarios are highlighted in bold.

without Underground Parking Facility and the 2015 Cumulative with Underground Parking Facility, respectively.

Under the 2015 Cumulative with Underground Parking Facility conditions, traffic generated by the proposed project were included as part of the traffic destined to and from the parking facility. As such, to determine the proposed project's contribution to the 2015 Cumulative with Underground Parking Facility conditions, the volume of traffic related to the proposed project was estimated as a share of the total inbound and outbound parking facility traffic.

2015 Cumulative without Underground Parking Facility

During the Saturday midday peak hour, the proposed project would contribute between 1.6 percent and 51.8 percent of the growth in traffic volumes between Baseline and 2015 Cumulative conditions, and would contribute between 0.2 percent and 3.6 percent of the total 2015 Cumulative volumes. During the Sunday midday peak hour, the proposed project would contribute between 1.2 percent and 55.2 percent of the growth in traffic volumes between Baseline and 2015 Cumulative conditions, and would contribute between 0.2 percent and 3.4 percent of the total 2015 Cumulative volumes. In general, the percent contributions would be the smallest at the intersections furthest away from the project site and would be the highest at the intersections adjacent to the project site (such as along Kennedy Drive and King Drive). It should be noted that the CAS contribution to the traffic volumes on King Drive would increase on Sundays, due to the Sunday closure of Kennedy Drive.

2015 Cumulative with Underground Parking Facility

During the Saturday midday peak hour, the proposed project would contribute between -35.7 percent and 27.2 percent of the growth in traffic volumes between Baseline and 2015 Cumulative conditions, and would contribute between 0.0 percent and 3.6 percent of the total 2015 Cumulative volumes. During the Sunday midday peak hour, the proposed project would contribute between -6.1 percent and 55.7 percent of the growth in traffic volumes between

Baseline and 2015 Cumulative conditions, and would contribute between 0.0 percent and 4.5 percent of the total 2015 Cumulative volumes. In general, the percent contributions would be the smallest at the intersections farthest away from the project site and would be highest at the intersections adjacent to the parking facility access (at Fulton/Tenth and King/Academy). It should be noted that the CAS would have a negative contribution to the traffic volumes at some of the study intersections, as a result of the reduction in traffic volumes at some of the study intersections due to the rerouting of traffic through the Park with the Underground Parking Facility.

Based on the proposed project's contribution to the changes in traffic volumes at the intersections that would operate at LOS E or F, it was determined whether the proposed project would have a significant contribution to the cumulative conditions. This determination was based on an examination of the traffic volumes for the movements which determine the overall level of service conditions at each intersection.

The proposed project would be considered to have a significant contribution to cumulative conditions at the intersection of Fulton/Stanyan for both the Without and With Underground Parking Facility scenarios, based on the proposed project's contribution to the 2015 Cumulative conditions. At this location, the proposed project would add a substantial number of vehicles to the turning movements which determine the intersection's operating conditions. Therefore, vehicles added to these movements by the proposed project would represent a considerable contribution to the 2015 Cumulative conditions.

The proposed project would not have a significant contribution to the 2015 Cumulative conditions at the intersections of Fulton/Arguello, Park Presidio/Fulton, King/Crossover and Lincoln/Nineteenth for both the Without and With Underground Parking Facility scenarios.

At the intersection of Fulton/Arguello, the proposed project would contribute 7.8 percent to the growth in traffic volumes between Baseline and 2015 Cumulative Without Underground Parking Facility conditions during the Sunday midday peak hour. For the turning movements which determine the intersection's operating conditions, the proposed project would generally

add traffic to movements which would operate satisfactorily. Although the proposed project would add traffic to one movement which would operate poorly (the eastbound through-movement), the proposed project's contribution to this movement would be small (less than 2.0 percent).

At the intersections of Park Presidio/Fulton, King/Crossover and Lincoln/Nineteenth, there would be significant cumulative traffic impacts for which no feasible mitigation measures have been identified. At these intersections, the proposed project's contribution to growth in traffic volumes between Baseline and 2015 Cumulative conditions would be small (less than 3.0 percent). For the turning movements which determine the intersections' operating conditions, the proposed project would generally add traffic to movements which would operate satisfactorily. Although the proposed project would also add traffic to movements which would operate poorly, the proposed project's contribution to these movements would be small (less than 0.3 percent). As a result, the proposed project would not have a significant cumulative impact those intersections.

Overall, traffic generated by the proposed project would not represent a considerable contribution to 2015 Cumulative traffic conditions and the proposed project would not have a significant cumulative traffic impact, except at the intersection of Fulton/Stanyan for both the Without and With Underground Parking Facility scenarios. Chapter IV, Mitigation Measures, identifies measures that would avoid these cumulative impacts at the Fulton/Stanyan intersection.

While the proposed project would not contribute significantly to cumulative impacts at the Fulton/Arguello and Park Presidio/Fulton intersections, mitigation measures have been developed that would reduce cumulative impacts to a less-than-significant level (LOS D). These measures are further described in Chapter IV, Mitigation Measures. No mitigation measures have been developed that would reduce significant cumulative impacts to King/Crossover and Nineteenth/Lincoln.

NOTES - Transportation

- ¹ The information in this section is from the *New California Academy of Sciences Final Transportation Study*, March 7, 2003, prepared by Wilbur Smith Associates, Case No. 2002.0782!. This report is available for public review by appointment at the San Francisco Planning Department, 1660 Mission Street.
- ² Major arterials are defined as cross-town thoroughfares whose primary function is to link districts within the city and to distribute traffic from and to the freeways. These are routes generally of citywide significance.
- ³ The Congestion Management (CMP) Network is the network of freeways, state highways and major arterials established in accordance with state Congestion Management legislation.
- ⁴ The Transit Preferential Street network classification system takes into consideration all transportation functions, and identifies the major transit routes where general traffic should be routed away from. There are two classifications of transit preferential streets: Primary Transit Streets, which are either transit-oriented or transit-important; and Secondary Transit Streets. Primary Transit Streets (Transit-Oriented) are not major arterials, with either high transit ridership, a high frequency of service, or surface rail. Along these streets, the emphasis should be on moving transit vehicles, and impacts on automobile traffic should be of secondary concern. Primary Transit Streets (Transit-Important) are Major arterials, with either high transit ridership, high frequency of service, or surface rail. Along these streets, the goal is to improve the balance between modes of transportation, and the emphasis should be on moving people and goods, rather than on moving vehicles. Secondary Transit Streets are medium transit ridership and low-to-medium frequency of service, or medium frequency of service and low-to-medium transit ridership, or connects two or more major destinations.
- ⁵ The Metropolitan Transportation System (MTS) is a regional network for San Francisco of freeways, major and secondary arterials, transit conflict and recreational streets meeting nine criteria developed by the Metropolitan Transportation Commission as part of the Regional Transportation Plan. The criteria identify facilities that provide relief to congested corridors, improve connectivity, accommodate travel demand and serve a regional transportation function.
- ⁶ The Citywide Pedestrian Network is a classification of streets throughout the City used to identify street devoted to or primarily oriented to pedestrian use. The main classifications are: Citywide Pedestrian Network Streets, which are inter-neighborhood connection with "citywide significance" includes both exclusive pedestrian and pedestrian-oriented vehicular streets.; and Neighborhood Network Streets, which are neighborhood commercial, residential or transit street that serves pedestrians from the general vicinity. As part of the Neighborhood Network Street network, streets are classified as Neighborhood Commercial Streets, which are streets that are predominately commercial use with parking and loading conflicts, or Neighborhood Network Connection Streets, which are intra-neighborhood connection streets that connect neighborhood destinations.
- ⁷ Recreational Streets are a special category of street whose major function is to provide for slow pleasure drives and cyclist and pedestrian use; more highly valued for recreational use than for traffic movement. The order of priority for these streets should be to accommodate: (1) pedestrians, hiking trails or wilderness routes, as appropriate; (2) cyclists; (3) equestrians; (4) automobile scenic driving.
- ⁸ Under California Public Resources Code Section 21060.5, "environment" means "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, and objects of historic or aesthetic significance."
- ⁹ City and County of San Francisco Planning Department, *Transportation Impact Analysis Guidelines for Environmental Review*, October 2002.

- ¹⁰ City and County of San Francisco Planning Department, *Transportation Impact Analysis Guidelines for Environmental Review*, October 2002.
- ¹¹ Economics Research Associates, *Attendance Potential*, Prepared for the California Academy of Sciences, February 27, 2002.
- ¹² San Francisco Planning Code, §151. Assumed to be “art activities” use, with one parking space required per 2,000 occupied square feet.
- ¹³ San Francisco Planning Code, §155.1(c) and §155.3(b).
- ¹⁴ San Francisco Planning Code, §152.
- ¹⁵ The Concourse Special Area Plan has not yet been adopted, and is pending additional study by the Concourse Authority.
- ¹⁶ Environmental review of the proposed Kennedy Drive closure has been completed, and a traffic and parking impact analysis of the closure is documented in the *Kennedy Drive Saturday Closure Traffic and Parking Analysis Final Report*, October 2002. This report is available for public review by appointment at the San Francisco Planning Department, 1660 Mission Street.
- ¹⁷ San Francisco Planning Department, *Golden Gate Park Concourse Authority Projects Draft Environmental Impact Report*, Case No 2001.911E, December 14, 2002.
- ¹⁸ In the analysis for the Underground Parking Facility, two variants of the parking removal were assessed. For this report, the traffic and parking conditions for Parking Variant 1 was used, which assumed the spaces to be removed would be concentrated in the Music Concourse area.
- ¹⁹ As assumed with Parking Variant 1. A second parking variant was also assessed in the study, for which the parking removal in the eastern portion of the Park was not concentrated in the Music Concourse area. The specific locations of the spaces to be eliminated have not been determined at this time.
- ²⁰ It should be noted that the parking control officer was identified in the GGPDA Draft EIR.
- ²¹ It should be noted that the improvement identified in the *Golden Gate Park Master Plan* for the intersection of Fulton/Stanyan to provide additional capacity for the northbound left-turn movement was determined not to be feasible by DPT. DPT is currently reviewing potential changes at this intersection to improve traffic flow. As a result, this analysis does not assume any improvements at the intersection.

C. HISTORIC RESOURCES

The Initial Study, published on September 28, 2002, determined that the proposed project could impact historic resources (see Appendix A, p. 27). Impacts to archeological resources were determined less-than-significant with implementation of standard mitigation measures described in Chapter IV, Mitigation Measures. This section discusses the historic resources that would be affected by the proposed project, including the Golden Gate Park as a whole, the Music Concourse, and the CAS itself. Architectural surveys and evaluations completed for the project site, including *An Evaluation of the Potential Effect of the Proposed California Academy of Sciences on Historical Resources*,¹ and *National Register of Historic Places*, and *California Register of Historical Resources* are summarized in this section. This section summarizes the report prepared by Page & Turnbull, Inc., An Evaluation of Potential Effect of the Proposed California Academy of Sciences on Historic Resources, January 30, 2003, and presents the major conclusions reached in that document.

SETTING

APPLICABLE PLANS AND REGULATIONS

Local Historic Preservation Regulations and Surveys

Architectural surveys provide information about existing properties that may be of value to a community. Designation or listing on a registry of cultural and/or historic resources may occur if a building, structure, site, or object is found to be of value; designated or listing can also serve to alert potential developers of the public's interest in such properties through review by public boards and commissions. There are a number of surveys and lists of San Francisco resources that are considered to have attained a degree of architectural, historical, and/or contextual importance. Local registers or surveys relevant to Golden Gate Park include San Francisco Planning Code Article 10 and the 1976 Department of City Planning Citywide Survey.

San Francisco Planning Code Article 10

Article 10 of the Planning Code sets forth procedures regarding the preservation of sites and areas of special character or special historical, architectural or aesthetic interest or value such as officially designated City Landmarks and buildings included within locally designated Historic Districts.

The Francis Scott Key Monument, at the east end of the Music Concourse, is listed under Article 10 of the Planning Code as City Landmark No. 96. Other structures in the Park listed as City Landmarks under Article 10 include the Conservatory of Flowers (No. 50), the Sharon Building (No. 124), the North (Dutch) Windmill (No. 147), McLaren Lodge (No. 175), the Beach Chalet (No. 179), and the Bowling Green Clubhouse (No. 181).² The CAS is not listed as a City Landmark, nor are any of its individual buildings.

1976 Department of City Planning Citywide Survey

Between 1974 and 1976, the San Francisco Planning Department conducted a citywide inventory of the City's approximately 170,000 structures to determine their architectural importance. The physical appearance of contemporary and older buildings was surveyed but historical associations were not included in the study. An advisory review committee of architects and architectural historians determined that 10,000 of these buildings were eligible for inclusion in the survey based upon various factors including architectural design, urban design context, and overall environmental significance. These buildings represent roughly 10 percent of the City's entire building stock. Buildings included in the survey are rated from a low of '0' to a high of '5'.

The Spreckels Temple of Music and the Japanese Tea Garden, in the Music Concourse area, were rated in the 1976 Citywide Survey. Other rated structures throughout the Park include the Conservatory of Flowers, the Sharon Building, the North (Dutch) Windmill, the Park Emergency Hospital, the Beach Chalet, and the Millwright's House. The CAS was not rated in the 1976 Citywide Survey, nor are any of its individual buildings.

GOLDEN GATE PARK

The project site is located within the eastern portion of Golden Gate Park, a 1,017-acre, rectangular park bounded by The Great Highway, Lincoln Way, Stanyan Street and Fulton Street. The Park, one of the most historic urban parks in the United States, was begun in 1871. Originally an unimproved expanse of sand dunes and chaparral, the area was transformed into a naturalistic assemblage of meadows, forests, groves and lakes. Paths, roads, and recreational and cultural facilities have been added since 1872. This transformation occurred under the direction of the first Park Superintendent, William Hammond Hall, and early development continued under John McLaren, who became the Park Superintendent in 1890 and held that post until his death in 1942.

Golden Gate Park is divided into two primary sections, roughly east and west of Strawberry Hill and Crossover Drive. The eastern half is more intensively developed and manicured whereas the western half is wilder in character with dense pine, Monterey cypress and eucalyptus woodlands, lakes and other features. Throughout the Park, meadows and horticultural displays were spatially organized among the forest groves and along circulation networks to create pastoral settings and views. Landscape features are organized along a circulation network of two primary winding, east-west roads: Kennedy Drive and King Drive. Secondary roads and pedestrian pathways supplement the primary road network and define important cultural nodes such as the Conservatory of Flowers and the Music Concourse.

The area east of Stow Lake was developed under McLaren for the California Mid-Winter International Exposition (Mid-Winter Fair), which opened in January 1894. A follow-up to the successful 1893 Chicago World's Columbian Exposition, the Mid-Winter Fair was meant to provide a boost to the local economy and showcase California's healthy year-round climate and domestic industries. The Music Concourse, originally developed as the landscaped "Grand Court of Honor" for the Mid-Winter Fair, was the focal center for over 180 fair buildings constructed at its edges. Most of the buildings were temporary structures constructed in eclectic styles. The last of the original fair buildings, the Fine Arts Building

and Bavarian Palace, which had been incorporated as part of the M.H. deYoung Memorial Museum, were demolished as part of new construction and renovation efforts in 1930.

MUSIC CONCOURSE

Covering almost nine acres, the original concourse was completed in 1894 as the Grand Court of Honor for the Mid-Winter Fair. The layout and design of the Music Concourse has often been attributed to John McLaren. Early photographs of the previously undeveloped site (labeled on early maps as “Concert Valley”) show a natural declivity covered with grasses and small trees planted by gardeners. The natural valley was hollowed out and graded in 1894 by men using mule teams and scrapers. The spot was considered to be ideal for a promenade ground and bandstand due to its sheltered location.

Currently, the Music Concourse is a large open space between the Spreckels Temple of Music (Band Shell) at the west end and the Francis Scott Key Monument, which sits atop a grassy slope at the east end. Flanked by the under-construction New deYoung Museum, the CAS, and the Japanese Tea Garden, the Music Concourse is the cultural center of Golden Gate Park. The bowl of the Concourse is approximately 10 feet below the surrounding roadways (Tea Garden Drive and Academy Drive) and is connected with five sets of stairs, and several ramps. The arrangement is formal and symmetrical with concrete paths, regularly spaced pollarded deciduous trees, and rows of benches at the west end of the Concourse that are oriented toward the Band Shell (1899). The Rideout Fountain (1924) is at the center of the Music Concourse with two fountains, the Charles Hall Page Fountains (1914), to the east and west along the central east-west pathway. Another fountain, donated by Phoebe Apperson Hearst and designed by architects Bakewell & Brown, is at the southeast corner of the Music Concourse.³

CALIFORNIA ACADEMY OF SCIENCES

Background of the CAS

The CAS is an assemblage of buildings that have taken shape over the past three quarters of a century. Consisting of the Museum of Natural History, Steinhart Aquarium, and Morrison

Planetarium, the CAS is one of San Francisco's most distinguished cultural institutions and one of the most important institutions of its kind in the United States. Founded in 1853 and incorporated in 1871, the CAS was established with the ambitious mission of surveying the natural environment of the western third of the North American Continent. Originally located on Market Street, the Academy and its collection were destroyed by the 1906 Earthquake and Fire. Gradually, the collections were rebuilt; however, for nearly a decade the Academy had no permanent home, with its collections housed temporarily at Fort Mason. It was decided to rebuild the Academy in Golden Gate Park on the south side of the Music Concourse, on the former location of the Mid-Winter Fair's Mechanical Arts Building.

In 1911, the CAS Board of Trustees retained architect Lewis P. Hobart, cousin (by marriage) of Board President William H. Crocker, to design the new CAS. Lewis Hobart, one of San Francisco's more prominent and socially well-connected architects during the first half of the twentieth century, designed a variety of building types in different styles. In addition, like other successful architects of his day Hobart's work evolved with the times. His earliest post-1906 work is within the Beaux-Arts mode. Toward the end of his career, Hobart was working in a Streamline Moderne mode. In addition to the Academy, some of Hobart's notable extant works include: the Sutter Street YMCA (1916), the Alexander Building at 149 Montgomery Street (1921), Federal Savings Building at 79 Post Street (remodel 1923), Honolulu Memorial (1923), the Hotel del Monte in Monterey (1925), the Selbach and Deans Building at 340-44 Pine Street (1928), Macy's at 101 Stockton Street (1928, 1948), the William Taylor Hotel and Temple Methodist Church (with Miller & Pflueger, 1930) at 100 McAllister Street (now owned by Hastings College of the Law as student housing), the Mills Tower at 220 Montgomery Street (1931), the Bohemian Club at 625 Taylor Street (1934), the Arch of Winds and Court of Flowers at the Golden Gate International Exposition (1939), and the Union Oil Company at 425 First Street (1941).

Hobart's plans illustrated a large U-shaped complex with a Classical Revival façade consisting of a pedimented pavilion flanked by two exhibition wings occupying 450 feet of frontage along the Music Concourse, reflecting Hobart's training at the École des Beaux Arts in Paris. Although the Academy had a large site donated by the City, they only had enough money to

build part of Hobart's design. The Academy's ambitious plans meant that the complex would be expanded gradually when funding became available.

CAS Buildings

The following discussion is a brief historical overview of the primary CAS buildings and the changes that have occurred over time. Figure 12 identifies each of the CAS buildings by name and date of construction.

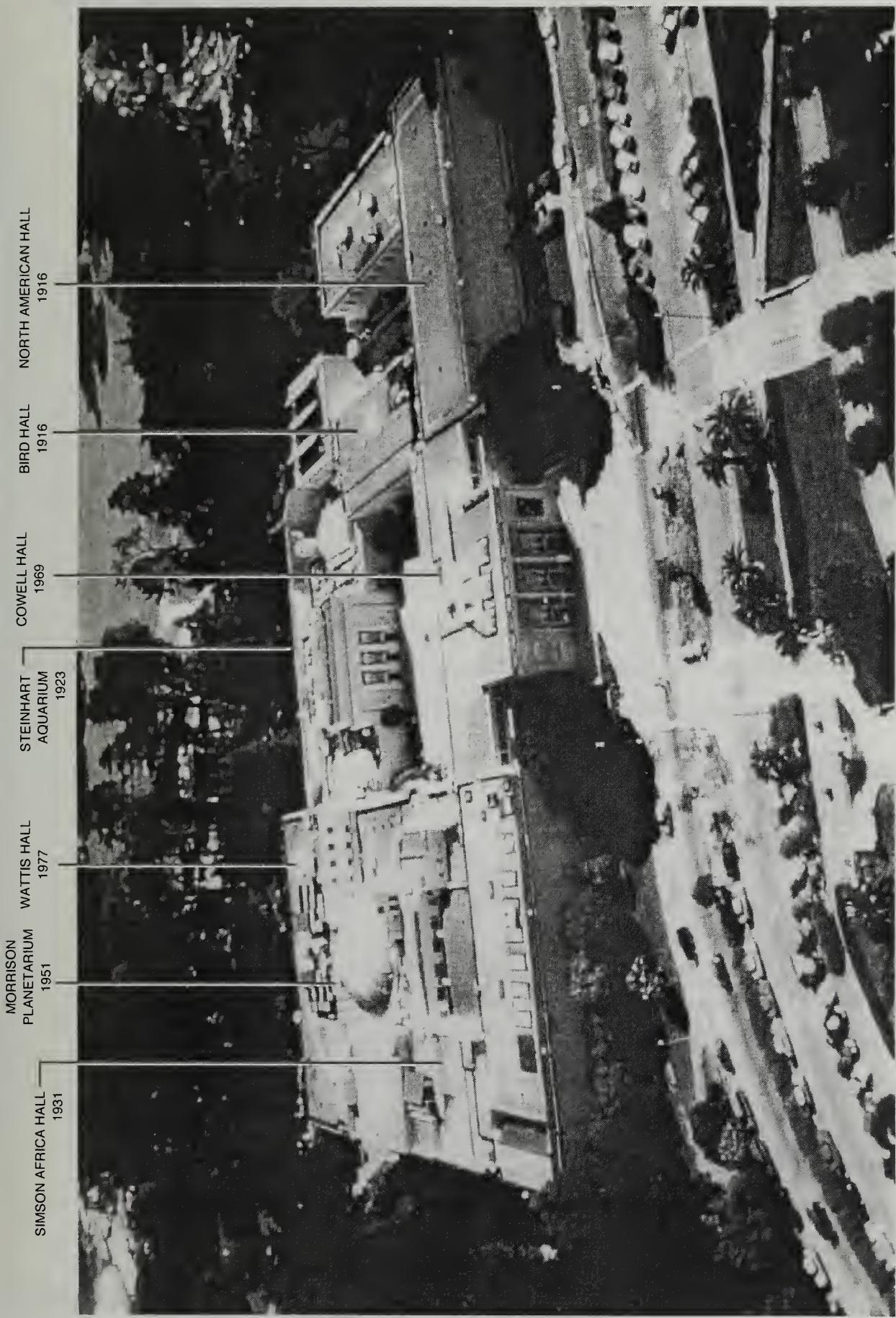
North American Hall

The first building at the Academy's new site in Golden Gate Park was the North American Hall, which comprised the westernmost section of the complex. Construction of the North American Hall, or West Wing as it was more commonly called, began in 1914. The West Wing of the new Academy of Sciences was opened to the public on September 22, 1916. The U-shaped building included three major sections. The main volume facing the Music Concourse contained the North American Hall and what is now Gem Hall. Two wings projected from the main volume toward Middle Drive to the south; the westernmost was the Research Wing and the easternmost was the North American Bird Hall.

Steinhart Aquarium

In 1916, Ignatz Steinhart bequeathed \$250,000 to the California Academy of Sciences to be used for the "erection and equipment of a public aquarium in Golden Gate Park adjacent to the Museum of the California Academy of Sciences and to be under the control of the Academy." In 1921, the Trustees again retained Lewis Hobart to draw up plans for a state-of-the-art aquarium, and on September 23, 1923, the Steinhart Aquarium was completed.

At the time of completion, Steinhart Aquarium was one of the largest aquariums in the United States and the only with collections emphasizing California and the Pacific Tropics. By the early 1930s, Steinhart Aquarium was attracting over a million visitors annually, putting a great deal of pressure on the relatively small building; the Board of Trustees was already calling for a threefold expansion to accommodate growing numbers of visitors and space for additional



CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 12: ACADEMY BUILDINGS BY NAME AND DATE OF CONSTRUCTION

SOURCE: RPBW

tanks. Figure 13A is an historic view of Steinhart Aquarium in 1925. Figures 14A and 14B are contemporary exterior and interior views of the Steinhart Aquarium.

Simson African Hall

During the late 1920s, the Board of Trustees concentrated on raising funds for the completion of Hobart's 1912 design, as well as augmenting the institution's holdings. In 1929 a major donor emerged, Berkeley mining engineer and big-game hunter, Leslie Simson, who offered to travel to Africa at his own expense to shoot and preserve examples of African wildlife.

In 1929, Lewis Hobart began preparing detailed plans for the new East Wing. Although it was to be identical to the North American Hall from the exterior, the East Wing would actually have a substantially different interior to house Simson's collections and additional office, research and storage space. The September 25, 1929 *San Francisco Chronicle* printed Lewis Hobart's rendering of the proposed north elevation of the CAS. The rendering shows not only the planned East Wing but also a grand central portico which Hobart had intended to link the two exhibition halls. The East Wing was completed in 1931.

Two of the Academy's departments immediately moved into the building; the Department of Ichthyology, with its collection of three-hundred thousand specimens, was transferred to the basement of the building, while the Department of Entomology, with its collection of almost one million insect specimens, was assigned to the second floor. The Academy's administration offices were also moved to the second floor.

Following the arrival of Simson and his animals and the completion of the exhibits, the East Wing of the California Academy of Sciences was dedicated and officially renamed Simson African Hall on December 14, 1934. In addition to a major Water Hole Group, the exhibit hall on the first floor included the following major exhibits: Beisa Oryx, Roan Antelope, Mountain Nyala, Grevy's Zebra, African Lion, Hunter's Hartebeest, Bushbuck, Waterbuck, Black Lechwe and Sable Antelope, as well as thirteen smaller groups. Figure 15 shows a contemporary exterior view of Simson African Hall.



FIGURE 13A: HISTORIC VIEW OF STEINHART AQUARIUM (1925)



FIGURE 13B: AERIAL VIEW OF ACADEMY (1960)

SOURCE: Page & Turnbull

CALIFORNIA ACADEMY OF SCIENCES PROJECT



FIGURE 14A: CONTEMPORARY EXTERIOR VIEW OF STEINHART AQUARIUM



FIGURE 14B: CONTEMPORARY INTERIOR VIEW OF STEINHART AQUARIUM (SWAMP)



SOURCE: Page & Turnbull

CALIFORNIA ACADEMY OF SCIENCES PROJECT

FIGURE 15: CONTEMPORARY EXTERIOR VIEW OF SIMSON AFRICAN HALL

Additions and Changes to the Academy

The completion of Simson African Hall brought the CAS approximately half way toward the realization of Lewis Hobart's plans. Plans presented in a 1937 commemorative booklet illustrate what was intended to be built in upcoming years, including a new Entrance Hall (situated in the central courtyard between the North American Hall and Simson African Hall), a large L-shaped addition to Simson African Hall, an auditorium addition, a small research hall linking North American Bird Hall and the Research Wing, as well as two large additions to the rear of Steinhart Aquarium. Lewis Hobart's latest design for the Entrance Hall featured a stylized portico, a bold cornice and an attic incised with inscriptions. The design of the proposed Entrance Hall resembled the nearby Spreckels Temple of Music designed by the Reid Brothers in 1899.

Despite the Academy's desire to complete its ambitious building program, little was accomplished between the dedication of Simson African Hall in 1934 and the end of World War II. During World War II, the CAS was closed to visitors and much of it was used for military related functions, including the Optical Repair Shop, which repaired and manufactured optical devices for airplanes and ships.

The first major postwar building campaign began in 1947 when the Board of Trustees announced that it would need three-quarters of a million dollars to continue filling out Hobart's plan. The work included expansion of Steinhart Aquarium, a new planetarium, a new library, as well as enhancement of existing research.

In 1949, the San Francisco firm of Weihe, Frick & Kruse was retained and construction began on Science Hall (Lewis Hobart had retired in 1945). Weihe, Frick & Kruse designed the Science Hall, which was completed in 1951 and included several exhibit halls and other spaces including May T. Morrison Auditorium, the Alexander F. Morrison Planetarium, the Hall of Astronomy, Lovell White Hall of Man and Nature, and an addition to Simson African Hall. Figure 16A is a contemporary view of the exterior of Science Hall, and Figure 16B is a contemporary interior view of the Morrison Planetarium, including the star projector.

The San Francisco firm of Weihe, Frick & Kruse consisted of three partners who had worked in the offices of Arthur Brown, Jr. Weihe, Frick & Kruse maintained their offices in the Charleston Building at 251 Kearny. Major projects completed by Weihe, Frick & Kruse include the completion of Grace Cathedral (begun by Lewis P. Hobart), the San Francisco Hall of Justice, Stanford University's Encina Hall remodel, the Lake Merced Sports Center and the deYoung Museum's Kress Collection addition (demolished). Academic buildings attributed to the firm include buildings for Humboldt State College, and several buildings for the UC Berkeley campus, including Dwinelle Hall. Military projects include facilities at the Monterey Presidio, Castle Air Force Base, Fort Ord, and Hamilton Air Force Base (all in California). The firm also designed a national memorial of the Pacific in Hawaii, the "Punchbowl."

The Alexander F. Morrison Planetarium, completed in 1952, considered part of Science Hall, is one of the earliest major planetariums in the United States. This facility included a star projector which is still in use, constructed by former employees of the Optical Repair Shop (see Figure 16B). Figure 13B is an overall view of the Academy in 1960. The dome of the Morrison Planetarium is visible in this photo.

While few changes occurred through the remainder of the 1950s, the 1960s and 1970s was a period of major expansion at the Academy. In 1963, Steinhart Aquarium went through a major modernization campaign. With the exception of the entry vestibule, the Swamp exhibit and the corridor immediately surrounding it, most of the interior was remodeled in order to accommodate new equipment. In addition, a new wing was added on the west side of the original building.

It was also a period in which the master plan developed by Lewis Hobart was substantially modified, preventing the Beaux-Arts scheme from being realized. In 1969, the Whale Fountain and the Francis Scott Key Monument were moved from the Courtyard to accommodate the construction of a modern entrance hall at the location of Lewis Hobart's planned entrance pavilion. Designed by Milton T. Pflueger, Cowell Hall was intended to recall Hobart's original design using a modern architectural vocabulary. To accommodate



FIGURE 16A: CONTEMPORARY EXTERIOR VIEW OF SCIENCE HALL

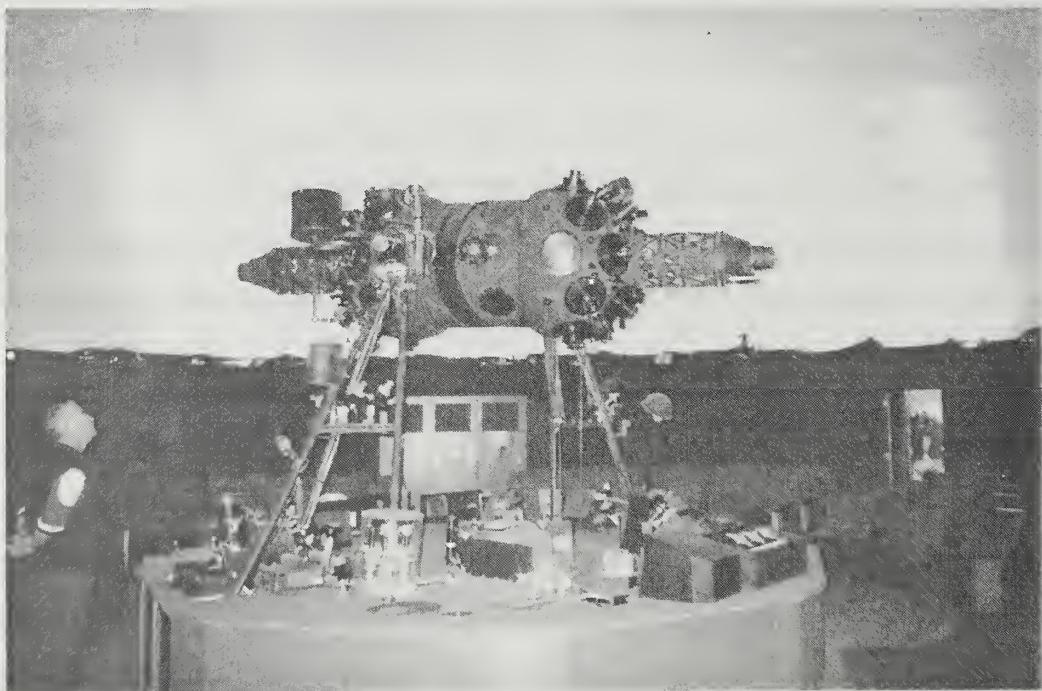


FIGURE 16B: CONTEMPORARY INTERIOR VIEW OF MORRISON PLANETARIUM

SOURCE: Page & Turnbull

CALIFORNIA ACADEMY OF SCIENCES PROJECT

Cowell Hall, some of the existing walls and materials were removed from the east wall of the North American Hall and the west wall of Simson African Hall. The Cowell Hall addition was a visual and aesthetic departure from the original Beaux Arts design and plan. Although the Cowell Hall façade makes an attempt at relating to Hobart's proposed porticoed pavilion, the roughly finished concrete and Modernist aesthetic provides a contrast with the smooth limestone exterior and delicate Classical detailing of the adjacent North American Hall and Simson African Hall.

The 1970s witnessed another major round of building. In 1976, Pflueger designed a major research and exhibition hall. Wattis Hall is similar to Cowell Hall in terms of its concrete construction and Modernist aesthetic. The Fish Roundabout, the first such exhibit of its kind in the nation, was completed in 1977.

During the 1980s and 1990s, the CAS underwent a series of expansions and alterations to accommodate evolving approaches to museum administration as well as responding to aging infrastructure. In 1983, the Water Hole exhibit in Simson African Hall was remodeled. In 1986, the primary interior exhibition space (Meyer Exhibition Hall) in North American Hall was completely remodeled, converting it into the exhibit "Wild California" which exists today. This remodeling removed all historic materials in the interior of this portion of North American Hall.

The Loma Prieta Earthquake of 1989 seriously damaged much of the complex, particularly the earlier Lewis Hobart-designed structures. North American Bird Hall was the most heavily damaged and as a result it was "red-tagged" and closed to the public. In addition, North American Hall, Simson African Hall, Steinhart Aquarium and Science Hall were damaged, requiring emergency repairs to these buildings.

After 1989, more recent projects since the earthquake included Jewett Linking Hall in 1989, McBean Peterson Gallery in 1990, and the enclosure of Herbst Portico in 1991. During the 1990s, the Academy underwent few changes as the Board of Trustees considered what to do with the aging complex. The repairs carried out after Loma Prieta were largely geared toward

making the buildings safe for use, and did not address larger programmatic, structural, ADA compliance, and aesthetic issues. As noted above, in 1995, the voters of San Francisco approved a \$29,245,000 bond measure, Proposition C, for improvement of the Steinhart facility. In 2000, the voters approved a second bond measure, Proposition B, of \$87,445,000 for improvement of the overall Academy facilities including seismic retrofit, ADA-compliance, life-safety issues and deferred maintenance. The bond was also intended to construct an additional 50,000 square feet of useable space.

HISTORIC PRESERVATION REGULATIONS AND CRITERIA

National Register of Historic Places

The *National Register of Historic Places* (*National Register*) is the nation's master inventory of known historic resources. The *National Register* is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the National, State or local level. Structures, sites, buildings, districts and objects over 50 years of age can be listed on the *National Register* as significant historic resources. However, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included on the *National Register*.

The Golden Gate Park, as a whole, has been proposed as a National Register District, as an historic landscape having achieved historical significance for the period between 1870 and 1943. A number of buildings, structures, sites and objects throughout the Park are considered to be contributing features to the proposed Golden Gate Park Historic District. The National Register of Historic Places Registration Form for the proposed historic district identified 123 contributing features including 27 buildings, 55 sites, 11 structures, and 30 objects. The Registration Form lists the existing CAS as contributing feature of the proposed Historic District. This document does not distinguish among individual buildings and identifies the CAS as an individual complex. However, the form remarks that while the CAS retains its historic use, the complex has been "severely altered."

Contributing features of the District in the Music Concourse area include: the Music Concourse; Spreckels Temple of Music; Francis Scott Key Monument; Japanese Tea Garden; Shakespeare Garden; Rhododendron Dell; the pedestrian underpass known as the Tunnel under Main Drive (now Kennedy Drive); and the many monuments and fountains in the Music Concourse.

The Sharon Building, near Kezar Drive east of the Music Concourse, has been determined individually eligible for listing on the National Register. The Conservatory of Flowers and the Beach Chalet were individually listed on the National Register in 1972 and 1981, respectively. In addition, the Alvord Lake Bridge (built in 1889), at Kezar Drive west of Haight Street, is listed as a National Historic Landmark; it is significant to civil engineering as America's first reinforced concrete bridge.

California Register of Historical Resources

The *California Register of Historical Resources* is an authoritative listing of the State's significant historical and archaeological resources. Any resource listed in or formally determined eligible for the *National Register* is automatically listed in the *California Register of Historical Resources*, pursuant to Section 4851(a) of the Public Resources Code.

Structures, sites, buildings, districts and objects over 45 years of age can be listed on the *California Register* as significant historic resources. In addition to age, the *California Register* evaluates a resource's eligibility for listing based on the following four criteria or associations:

- Criterion 1 (Event): Properties that are associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
- Criterion 2 (Person): Properties that are associated with the lives of persons important to local, California, or national history;
- Criterion 3 (Architecture): Properties that embody the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; and

- Criterion 4 (Information Potential): Properties or sites that have yielded or have the potential to yield information important to the prehistory or history of the local area, California or the nation.

In order to be found eligible for listing in the *California Register of Historical Resources* a historic property must meet at least one of the above-listed criteria in addition to retaining integrity. The *California Register* (which is closely based on the *National Register* criteria) defines seven aspects, or qualities, that together define integrity: location, design, setting, materials, workmanship, feeling and association. To retain historic interior, a property will always possess several, and usually most of the aspects. For each property, the analysis considers the Criterion. It then assesses eligibility taking into account integrity.

Evaluation of Historical Resources for the California Register

The Page & Turnbull Report provides an evaluation of the CAS facility for eligibility for listing in the *California Register*. The following is a summary of the findings of the report.

In general, the evaluation considered the historic significance of the separate buildings which comprise the CAS, and did not evaluate the facility as an entire complex. This evaluation methodology was employed because for the first thirty-five years of its existence, the CAS consisted of distinct buildings that were entirely separate from each other and built over time and as finances allowed. Although conceived as an ensemble, each building once read as separate volumes for the first half of the twentieth century and before more modern additions deviated from the Hobart plan. This is a conservative approach in that an individual building may be deemed to meet the criteria despite alterations to other buildings that have adversely impacted the integrity of the complex if taken as a whole.

Only buildings completed more than 45 years ago (before 1957) were analyzed for eligibility, as these are the only buildings potentially eligible for listing in the *California Register of Historical Resources*. These include; North American Hall (1916), Steinhart Aquarium (1923), Simson African Hall (1931), and Science Hall/Morrison Planetarium (1951/52). The conclusions regarding eligibility for each of these buildings are summarized below. Where appropriate, brief discussions about character defining features are also provided.

North American Hall

North American Hall is significant under *California Register* Criterion 1 (Events), due to its association with “events that have made a significant contribution to the broad patterns of local or regional history...” North American Hall is significant as the first structure erected for the California Academy of Sciences in Golden Gate Park following the destruction of the institution’s headquarters on Market Street during the 1906 Earthquake.

North American Hall is also significant under Criterion 3 (Architecture) as an early example of a relatively rare building type, particularly in the West. When the North American Hall was completed in 1916, the building type it represented, the natural history museum, was relatively recent. The hall represented a characteristically twentieth-century movement in natural history museum design in which exhibits were grouped and displayed according to scientific classification systems in an effort to improve the public’s understanding. As an early example of a natural history museum exhibit hall, the North American Hall also made use of pioneering technologies. For example, one of the building’s innovative features was its use of indirect lighting to illuminate the exhibits without glare or reflection. The North American Hall was one of the first such exhibit halls to make use of this system, obviating the need for exterior windows. The North American Hall is also significant under *California Register* Criterion 3, as an example of a work of a master, Lewis Hobart. As discussed above, Lewis P. Hobart was one of San Francisco’s most prominent architects to practice in San Francisco during the first half of the twentieth century.

Integrity. Issues of integrity generally relate to the interior of North American Hall, as it was primarily an interior-oriented building. Most of the interior of North American Hall has been compromised to a degree, especially in regard to the variables of design, materials, and workmanship. Much of the original interior has either been remodeled out of existence or heavily damaged. The interior of Meyer Hall was completely reconstructed in 1986, removing all original finishes and surface materials. North American Bird Hall has been compromised through removal of historic fabric to construct the plywood storage areas after the wing was heavily damaged in the Loma Prieta Earthquake of 1989. The second floor of

the old Research Wing has been altered as well to accommodate modern offices. Overall, the North American Hall lacks sufficient integrity to be listed in the *California Register of Historical Resources*.

Steinhart Aquarium

Steinhart Aquarium is significant under *California Register* Criterion 1 (Events), due to its association with “events that have made a significant contribution to the broad patterns of local or regional history...” Steinhart Aquarium is significant for a number of reasons, including its status as San Francisco’s first modern aquarium. The creation of an aquarium, specializing in the flora and fauna of the North Pacific, was a sign of San Francisco’s growing prestige as a major American city. The collections of Steinhart Aquarium not only included species found off the coast of California, but also those found near America’s possessions in the Pacific, including Samoa, Guam, Alaska, Hawaii and the Philippines.

Steinhart Aquarium is also significant under *California Register* Criterion 3 (Architecture) as a significant building type. Steinhart Aquarium is one of the first municipal aquariums constructed in the Western United States. Similar to the natural history museum exhibition hall, the aquarium was a modern building type whose origins lay in the mid-nineteenth century. The first modern aquarium opened in 1853 in London’s Regent Park. Three years later, the Smithsonian Institution established America’s first aquarium. When Steinhart Aquarium was completed in 1923, it was the largest and most complete aquarium in the nation, largely thanks to a tour Lewis Hobart had taken of other aquariums in Detroit, Washington, D.C., Philadelphia, Boston and Miami. Hobart’s training at the Ecole des Beaux Arts taught him valuable skills on how to plan space effectively. When Steinhart Aquarium opened in 1923, it was acclaimed for its sophisticated equipment and layout which divided the building into two parts: the public exhibition spaces on the main floor and the utilitarian “back-of-house” spaces in the basement. Steinhart Aquarium was also notable for its Beaux-Arts inspired Classical Revival façade and interior.

Steinhart Aquarium is also significant under *California Register* Criterion 3, as an example of a work of a master, Lewis Hobart.

Character Defining Features. The most significant exterior character defining features of Steinhart Aquarium include the entire façade design and finishes, including the colonnade, entablature, cornice, doors, fenestration, medallions and detailing, in particular the corner volutes and urns. The most significant interior character-defining features are concentrated in the Vestibule and Swamp, including the vaulted ceiling, colonnade, skylights, pool, brass railings, door jambs, tile borders and casework. Although largely original, the exhibition cases and tanks in the exhibition corridors are not especially architecturally significant.

Integrity. Steinhart Aquarium retains a moderately high degree of integrity. The visible portions of the exterior retains high degree of integrity; the only notable alteration being the replacement of the original inscription with the existing one that reads: "California Academy of Sciences." The exterior walls concealed behind new construction (Cowell Hall) were not detailed to any extent originally. Historic construction photos indicate that despite the removal of projecting elements, the south, east and west walls retain a moderate degree of integrity due to the fact that new construction was merely butted up against Steinhart Aquarium.

Much of the original interior of Steinhart Aquarium retains a moderate-to-high degree of integrity as well, including the Vestibule and Swamp exhibit, as well as the original exhibition corridors surrounding it. These spaces retain all seven aspects of integrity listed above. The mechanical, storage and office spaces in the basement have undergone more extensive alterations although not to the point at which they no longer convey any sense of what was there originally. To a certain extent the variables of setting and feeling are present but these have been compromised by the presence of Cowell Hall. Overall, however, Steinhart Aquarium maintains sufficient integrity to qualify for listing in the *California Register of Historical Resources*.

Simson African Hall

Simson African Hall is significant under *California Register* Criterion 1 (Events) due to its association with patterns and events, in this case the physical expansion of the CAS, as it evolved into one of America's most important natural science museums.

Simson African Hall is also significant under *California Register* Criterion 3 (Architecture) as a building that “embodies the distinctive characteristics of a type,” as well as being a significant work “of a master.”⁴ The California Academy of Sciences is ultimately based on Robert Smirke’s British Museum in London and the American Museum of Natural History in New York. Lewis Hobart’s original design called for a grand central Classical Revival porticoed pavilion at the center of the composition. This element was to be flanked on either side by two wings containing exhibit halls and offices. The construction of Simson African Hall was a step in the realization of this plan.

Simson African Hall is also significant under *California Register* Criterion 3 because it embodies examples of workmanship and “high artistic values.” In addition to the delicately-scaled limestone exterior, the Exhibition Hall features vaulted ceilings divided into a grid by shallow plaster coffers with regular bands of pierced grillwork. Bronze exhibition case frames and marble base moldings add to the high level of significance of this space.

Simson African Hall is also significant under *California Register* Criterion 3, as an example of a “work of a master,” Lewis Hobart. While Simson African Hall is only a part of Hobart’s partially realized master plan for the California Academy of Sciences, it is notable as part of Hobart’s only museum commission. It was the last segment of the California Academy of Sciences executed by Hobart.

Character Defining Features. Simson African Hall retains a significant amount of exterior and interior historic materials. The exterior retains important materials and features including the limestone cladding and Classical Revival architectural detailing including blind niches (see Figure 14) and pedimented panels, horizontal moldings, water table,⁵ cornice and decorative corner elements. The interior retains important character defining features, materials and finishes. Most of these are within the Vestibule and Simson Exhibition Hall. Some of these include plaster wall finishes and detailing, ornamental plaster vaulted ceilings, metal and glass display cases and marble base moldings. The second floor, although of lesser significance, also retains some important character-defining materials and features, including terrazzo flooring, wood panel doors and trim, skylights and original tiled bathrooms.

Integrity. Simson African Hall retains integrity of location, design, materials, workmanship and association. The exterior of Simson African Hall has undergone few alterations, with the notable exception of the removal of the original entrance and part of the west wall in 1969 when Cowell Hall was constructed. Overall, the interior of Simson African Hall retains the highest degree of integrity of any building at the CAS. The exhibit hall interior is almost unaltered from its 1931 appearance. Basement research departments and second floor offices have undergone few changes. To a certain extent the variables of setting and feeling are present but these have been compromised by the presence of Cowell Hall. Overall, however, Simson African Hall retains sufficient integrity to be listed in the *California Register of Historical Resources*.

Science Hall/Morrison Planetarium

Science Hall/Morrison Planetarium is significant under *California Register* Criterion 1 (Events), due to its association with the oldest and most distinguished scientific academy on the West Coast which has made a broad contribution to research and education within the State of California, and also for its association with the Optical Repair Shop. During World War II, professional astronomers, faculty from the University of California and others set up shop in the CAS to repair naval and army optical equipment. Following the war, some of these professionals fashioned a state-of-the-art star projector from spare parts. This projector, based on the work of German optical engineer, Carl Zeiss, was first put into use in 1952 when Morrison Planetarium was opened. This star projector is still in use (see Figure 15B).

Character Defining Features. Significant exterior features of Science Hall/Morrison Planetarium include the original building footprint, massing, and height, as well as the west elevation stucco cladding, water table, and entry pavilion. Significant interior spaces include the open exhibit plan of Science Hall, and the projector, seat layout, and metal dome of the Morrison Planetarium.

Integrity. The exterior of the building appears to have undergone few substantial changes, especially the west elevation facing Central Court. Although the interior of Science Hall has undergone some changes in regard to finishes, the general layout has been retained, in

particular Morrison Auditorium and Astronomy Hall. In addition, as a functional exhibit space, the interior of Science Hall was intended to undergo periodic changes. By far, the most significant interior space in the entire building is the interior of Morrison Planetarium. The space retains the original star projector, the original perforated metal dome with San Francisco's 1952 skyline cut out of the bottom edge, as well as the original seating. To a certain extent the variables of setting and feeling are present but these have been compromised by the presence of Cowell Hall which obscured the west-facing façade of Science Hall. Overall, however, Science Hall/Morrison Planetarium retains sufficient integrity to be listed in the *California Register of Historical Resources*.

The Music Concourse

A previous study by Page & Turnbull found that the Music Concourse is individually eligible for the *California Register* as a designed landscape associated with the California Mid-Winter Exposition of 1894 and the early development of the cultural center of Golden Gate Park.⁶ The Music Concourse is a landscape defined by the spatial relationships, topography, vegetation, and circulation networks evident in the assemblage of trees, turf lawns, pathways, stairs, pedestrian tunnels, monuments, fountains, and the Spreckels Temple of Music. The boundaries of the historical landscape roughly follow the Academy Drive and Tea Garden Drive as they circle the Music Concourse. The Music Concourse retains integrity of location, design, setting, materials, workmanship, and feeling.

Other resources in the Music Concourse area previously determined eligible for listing on the *California Register* include the Japanese Tea Garden and The Spreckels Temple of Music, although neither have been formally nominated. The John McLaren Rhododendron Dell, located to the east of the CAS, also appears individually eligible for listing on the *California Register*, but has not been formally nominated.

IMPACTS

SIGNIFICANCE CRITERIA

A project is normally found to have a significant effect on the environment if it will substantially disrupt or substantially adversely affect a property of historic significance. California Environmental Quality Act (CEQA) Section 21084.1 states “a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” A “historical resource” is defined as one that is listed in, or determined eligible for listing in, the *California Register of Historical Resources*, one that is identified as significant in a local register of historic resources, such as Article 10 of the San Francisco Planning Code, or one that is deemed significant due to its identification in an historical resource survey meeting the requirements of Public Resource Code Section 5024.1(g). A resource that is deemed significant due to its identification in an historical resource survey meeting the requirements of Public Resource Code Section 5024.1(g), is presumed to be historically significant unless a preponderance of evidence demonstrates otherwise.

A “substantial adverse change” is defined by CEQA Guidelines Section 15064.5 as “demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.”

PROJECT EFFECTS

As discussed above, Simson African Hall, Science Hall/Morrison Planetarium, and the Steinhart Aquarium have been determined to be potentially eligible for the *California Register*. The proposed project would incorporate most of Simson African Hall into the new design while demolishing all remaining buildings, including Science Hall/Morrison Planetarium, and the Steinhart Aquarium. The proposed project would also introduce a new building within the vicinity of the Music Concourse, a resource potentially eligible for the *California Register*. Finally, the proposed project would introduce a new building within the proposed Golden Gate

Park National Register Historic District and adjacent to individually contributing resources such as the Shakespeare Garden and the Rhododendron Dell. Each of these potential effects is described below.

Impacts on the California Academy of Sciences

The CAS is a complex of 12 buildings that date between 1916 – 1991. Due to the separate historic configuration and distinctive function of each building, buildings were evaluated for significance as individual resources. As described above, three buildings, Simson African Hall, Science Hall/Morrison Planetarium, and Steinhart Aquarium were found to be potentially eligible for the *California Register*.

The proposed project would demolish eleven of the twelve CAS buildings incorporating most of Simson Hall into the new facility. Demolition of buildings ineligible for the *California Register* would not adversely affect those resources. In addition, construction of the future underground collection growth space of 80,000 sq. ft. would have no adverse impact on *California Register* resources as it would be located beneath the hillside adjacent to Middle Drive East and would not be visible from historic resources within the Park when completed.

The project would require the relocation of two monuments along the Academy Drive façade. These monuments are not identified as historic resources. The project would not impact the Music Concourse monuments which are identified as contributory resources.

Demolition of Steinhart Aquarium and Science Hall/Morrison Planetarium by definition would “alter in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the *California Register of Historical Resources*.” As defined by CEQA, the proposed project would have substantial adverse change on the eligibility of both Steinhart Aquarium and Science Hall/Morrison Planetarium. This is considered a potentially significant unavoidable impact.

While the entrance hall to the Steinhart Aquarium would be rebuilt with new materials, incorporating the entry’s existing design elements such as the barrel vault and columns, and would refer to the original Steinhart Aquarium, it would be a reconstruction of the original

entrance and would not meet the Secretary of the Interior's Standards for Historic Preservation No. 2. Secretary's Standard No. 2 states that: "The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided."

The proposed project would also incorporate most of Simson African Hall into the new building. The existing roof would be removed and Simson African Hall would be encompassed by the new building envelope. The west entrance vestibule of the hall would be removed and replaced with new uses including a museum shop. The primary entrance and circulation through the hall would be relocated to another entrance at the southern elevation. It would also demolish Cowell Hall, an existing structure which currently adversely impacts the setting and feeling of the building. Cowell Hall has also created a new primary entrance and pedestrian circulation pattern, replacing the original intent. However, it appears that the alterations would violate Secretary's Standards No. 2 and No. 9. Secretary's Standard No 2 is described above. Secretary's Standard No. 9 partially states that: "New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property."

The proposed project would envelop Simson African Hall with a new building adding to the massing of the structure. The new overhanging and undulating roof would visually alter the appearance of the north-facing façade. These changes would effectively alter the spatial relationship of the building to its original surrounding environment and change the original massing design. Furthermore, changes to the interior plan would alter important interior spaces and the plan that characterize the building. The original entry vestibule and circulation pattern would be lost. These changes would significantly diminish the integrity of design, setting (though compromised), materials, workmanship, and feeling so that the building would no longer convey its historic significance. The proposed project therefore would cause a substantial adverse change to the eligibility of Simson African Hall. This is considered a potentially significant unavoidable impact.

● North American Hall would be one of the buildings demolished for the project. North American Hall is not considered eligible for the California Register, and therefore its demolition would not be a significant adverse effect on historic resources. The new construction on the west end of the site fronting the Music Concourse would include stone, other materials, proportions and dimensions to reflect the overall character of North American Hall.

Chapter VI, Alternatives, identifies two preservation alternatives that would reduce impacts on historic resources at the CAS to a less-than-significant level; however, if one of these alternatives were not selected, the impacts to historic resources would be significant and unavoidable.

Project Impacts on the Music Concourse

As discussed previously, the Music Concourse is individually eligible for the California Register as a designed landscape associated with the California Midwinter Exposition of 1894 and the early development of the cultural center of Golden Gate Park (1900-1926). As described in the Page & Turnbull report, the valley plan, topography, landscaping, and structures reflect the historic specialized cultural use of the Music Concourse. The surrounding hills, meadows, forest, and horticultural features are representative of the historic spatial organization of the valley and naturalized Park Landscape.⁷ The Music Concourse is a component landscape defined by the spatial relationships, topography, vegetation, and circulation of networks evident in the assemblage of trees, turf lawns, pathways, stairs, pedestrian tunnels, monuments, and fountains. Overall, the Music Concourse vicinity retains integrity of location design (plan) and materials.⁸ Proposed construction of the new CAS would occur outside the proposed historical boundary of the Music Concourse Bowl and would not alter any historical character defining features of the resource as an historic landscape. The proposed building would not alter the design, workmanship, or feeling of the Music Concourse as an historic landscape. However, proposed construction would introduce a new building to the vicinity of the Music Concourse. This section considers whether this structure could create adverse impacts on the Music Concourse.

As indicated in the next section, the new building would observe the Secretary's Standard to be "differentiated from the old" and "would be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment." The new building maintains an almost identical relationship and orientation to the Music Concourse as the existing facility. The size and scale of the new building would be similar to the existing structure, except for an increase in the maximum roof height by about

13 feet due to the two highest rooftop peaks, set back about 150 feet from the building's edge. Proposed materials including limestone and landscaping would be compatible with historic materials found in the area. The effects of more contemporary materials such as glass and steel would be overshadowed by the use of limestone walls and overhanging landscaped eaves.

While the proposed construction would change the setting of the vicinity, these changes would not be significant enough as to affect the integrity of the Music Concourse as an historic landscape. The landscaped bowl would remain intact and unaffected by CAS construction, its potential eligibility unchanged. As a result, the proposed project would have a less-than-significant impact on the potential historic significance of the Music Concourse.

Impact on the Proposed Golden Gate Park National Register District

As discussed above, Golden Gate Park, as a whole, has been proposed as a National Register District, as an historic landscape having achieved historical significance for the period between 1870 and 1943. Golden Gate Park is a distinctive example of nineteenth century landscape design associated with the pastoral and picturesque schools of landscape architecture. The Park's character-defining features include the spatial relationships, topography, and vegetation, while secondary features include buildings, structures monuments and recreational and cultural precincts.⁹ The proposed project would introduce a new building into a potential historical landscape district. The new building would not disturb any contributing features to that district and would observe relevant Secretary's Standards for the introduction of new structures. Secretary's Standard No. 9 states partially that: "New work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and environment. Although the integrity of Music Concourse valley is already somewhat compromised by newer construction such as Cowell Hall, the new building would closely conform to standards of compatibility. The new building would be a work of contemporary architecture differentiated from historic buildings within the Park. The projection of a light glass and limestone façade set under an undulating roof would combine contemporary construction techniques and materials with an innovative environmental system. The design would employ a diverse range

of materials including limestone, timber, glass, steel, and landscaping as design elements. The compatibility of these materials with Park features is found in the interplay of the limestone walls, timber trellis, and roof landscaping with subtle uses of glass and thin steel columns.

Generally, the proposed building matches the size, scale, proportion and massing of the existing CAS. The proposed building would rise to approximately 40 feet, a height comparable to the existing building, and undulating roof elements would reach a height of 67 feet approximately, 13 feet above the highest existing point. However, these elements would be set back over 150 feet from the Music Concourse and would not project any shade on the Music Concourse vicinity. Along the Music Concourse, the proposed north elevation would be characterized by uniform and symmetrical massing that is similar to the existing buildings. There would be no significant changes to the CAS relationship to the Music Concourse, and in some respects that relationship would improve through the elimination of newer elements that have compromised the integrity of the historic structures. The new building's size, scale, and massing would be compatible with the existing Music Concourse. Views from adjacent elements which contribute individually to the proposed District, such as from Shakespeare Garden and Rhododendron Dell, would be altered somewhat with the new CAS, but would not otherwise directly affect these resources. The new CAS would be relocated an additional 91 feet away from the Shakespeare Garden, reducing the building's overall visual effect on this historic resource, compared to the existing CAS building.

The proposed CAS would maintain important features of the Park and Music Concourse vicinity including topography, landscaping, circulation patterns, structures, and monuments. The loss of existing Park fabric would include the removal of a complex of 11 CAS buildings and several trees that would be replaced. However, the draft District nomination lists CAS overall as a contributing feature. This is based on the presence of CAS as an institution in the Park. Replacement with a new CAS building would maintain the integrity of location of the institution. As discussed above, the new building would not diminish the integrity of the Music Concourse vicinity. The project would not affect Golden Gate Park's eligibility for the National or California Registers. The proposed project would have a less-than-significant impact on the proposed Golden Gate Park National Historic District.

Cumulative Impact Analysis

In addition to the proposed project, other proposed and/or approved projects would be constructed in the Music Concourse area. On the north side of the Music Concourse, the New deYoung Museum is under construction. As described in Chapter II, Project Description, Phase I of the Golden Gate Concourse Authority Project would construct an underground parking garage for 800 vehicles in a two-level structure and associated entry ramp at Tenth Avenue and Fulton Street. Phase II of the project would construct an Underground Through Street connecting Fulton Street to Middle Drive East extending alongside the east side of the CAS. Viewed together with the new Academy, this discussion considers (based upon the cumulative analysis and conclusions in the Page and Turnbull Report) whether all three projects could have a cumulative effect on the historic significance of either the Music Concourse, and/or the proposed Golden Gate Park Historic District.

The potential impacts of the deYoung Museum and the Golden Gate Concourse Projects on historical resources were addressed in separate reports, including: (1) *An Evaluation of the Potential Effect of the Proposed New deYoung Museum on the Proposed Golden Gate Park Historic District* (Page & Turnbull, 2001), and (2) *An Evaluation of the Potential Effect of the Proposed Music Concourse Underground Parking Structure on Historical Resources* (Page & Turnbull, 2002). These potential impacts were also discussed in the *New DeYoung Museum, Revisions to Final EIR*, (San Francisco Planning Department, 2002), and the *Golden Gate Park Concourse Authority Projects Draft EIR*, (San Francisco Planning Department, 2002).

The potential impact of the proposed CAS on the Music Concourse and the potential Golden Gate Park Historic District was addressed in the sections above, which found no significant effect on either historic resources. The EIRs and supporting technical reports for the deYoung and the GGPAC Projects reached similar conclusions, in that none of the projects, as discussed below, would adversely impact the Music Concourse or Golden Gate Park Historic District, except for Phase II of the GGPAC Project, as discussed below. These conclusions were drawn from several primary analyses. First, the Music Concourse has been shown to be in a precinct of the Park already compromised by new or incompatible construction including

additions to the CAS, modifications to the now demolished deYoung Museum, and the construction of parking areas and roads within the Concourse area. The projects would avoid altering important Park landscape features (trees, vegetation, gardens, topography, and structures) and the overall spatial configuration and circulation of the valley would be maintained.

As noted on p. 25 of *An Evaluation of the Potential Effect of the Proposed New DeYoung Museum on the Proposed Golden Gate Park Historic District*, the New DeYoung Museum would not adversely effect individually eligible or distinctive features located in the project vicinity. The museum, as a building, is not a contributor to the significance of the Park as a designed landscape, though the Museum as an institution is considered to have contributed enormously to the vitality of San Francisco as the city's prime repository of fine art. For the existing Museum to be replaced by a building which is similar to it in everything but style would not impair the Concourse precinct and would not diminish the importance or significance of the Park in any way.

As noted on p. IV-31 of *An Evaluation of the Potential Effect of the Proposed Music Concourse Underground Parking Structure on Historical Resources*, Phase I of the GGPAC Projects would not demolish, alter or impair historic features in such a way that it would make the Golden Gate Park ineligible for the *National Register* or the *California Register*. Phase I would preserve the overall spatial organization and landscape features in the vicinity.

Phase II is an unfunded component of the proposed GGPAC Projects. If implemented in the future, a new Underground Through Street would eliminate an existing grove of trees and shrubs on the edge of the John McLaren Rhododendron Dell, which appears to be individually eligible for the *California Register*. The GGPAC Draft EIR and supporting technical documents concluded that these modifications would not be substantial enough to diminish the overall significance of the Park or the Music Concourse as an historic resource. However, the GGPAC Draft EIR found that the proposed Underground Through Road, including the ramp south of Kennedy Drive, would diminish primary aspects of Rhododendron Dell's integrity, including design, setting, and spatial relationship. These changes would directly impact

physical characteristics that justify the Rhododendron Dell's potential inclusion in the *California Register* as an individual resource. Phase II of the GGPCA Projects would therefore cause an unavoidable substantial adverse change in the individual significance of the Rhododendron Dell for listing in the *California Register*, as an historic resource.¹⁰ This is a project-specific, and not cumulative, impact of the GGPCA Projects, and the CAS project therefore would not contribute to this impact if the Phase II component were implemented.

Proposed new construction would be generally compatible with the existing Park landscape in location, size, scale, and materials. The New deYoung Museum, the new CAS, and Phase I of the GGPCA Projects would avoid altering important Park landscape features such as trees, vegetation, gardens, topography, and circulation of the valley would be maintained. Finally, the deYoung Museum and CAS projects would maintain the important cultural use of the Music Concourse precinct. The individual compatibility of each project and the continuity of use in the valley suggests that the cumulative impact of the all three proposed or approved projects would not be substantial enough to adversely impact the historic significance of Golden Gate Park or the Music Concourse.¹¹ Even if there were other significant impacts associated with the GGPCA Projects, because the CAS project would be consistent with the historic context, it would not contribute considerably to any such impacts. As a result, the proposed CAS would have a less-than-significant cumulative impact on the historic significance of the Music Concourse and the potential Golden Gate Park National Historic District.

NOTES – *Historic Resources*

¹ Page & Turnbull, Inc., *An Evaluation of the Potential Effect of the Proposed California Academy of Sciences on Historical Resources*, prepared for EIP Associates, January 30, 2003. This document is available to the public by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.

² City and County of San Francisco Planning Department, *Golden Gate Park Draft Master Plan FEIR*, Table 27: Historic and Architectural Resources, July 9, 1998, p. 188.

³ Royston, Hanamoto, Alley & Abey, *National Register of Historic Places, Registration Form, Golden Gate Park*. Draft nomination prepared for the San Francisco Department of Recreation & Parks, 1997, Section 7, p. 15.

- ⁴ "A master is a figure of generally recognized greatness in a field, a known craftsman of consummate skill, or an anonymous craftsman whose work is distinguishable from others by its characteristic style and quality." - National Register Bulletin: *How to Apply the National Register Criteria for Evaluation*.
- ⁵ "Water table" refers to the horizontal line at the base of the building.
- ⁶ Page & Turnbull, Inc., *Golden Gate Park Proposed Underground Parking Structure: Draft Evaluation of the Potential Effect on Historical Resources*, Golden Gate Park, San Francisco, October 2002
- ⁷ Page & Turnbull, Inc., *An Evaluation of the Potential Effect of the Proposed California Academy of Sciences on Historical Resources*, prepared for EIP Associates, January 30, 2003, p. IV-12. This document is available to the public by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.
- ⁸ Page & Turnbull, Inc., *An Evaluation of the Potential Effect of the Proposed California Academy of Sciences on Historical Resources*, prepared for EIP Associates, January 30, 2003, p. IV-14. This document is available to the public by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.
- ⁹ Page & Turnbull, Inc., *An Evaluation of the Potential Effect of the Proposed California Academy of Sciences on Historical Resources*, prepared for EIP Associates, January 30, 2003, p. IV-18. This document is available to the public by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.
- ¹⁰ San Francisco Planning Department, *Golden Gate Park Concourse Authority Projects Draft Environmental Impact Report*, Case No 2001.911E, December 14, 2002, p. 96. This document is available to the public by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.
- ¹¹ Page & Turnbull, Inc., *An Evaluation of the Potential Effect of the Proposed California Academy of Sciences on Historical Resources*, prepared for EIP Associates, January 30, 2003, p. IV-16. This document is available to the public by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.

D. VISUAL QUALITY

The Initial Study, published on September 28, 2002, determined that visual quality effects of the proposed project would not generate significant obtrusive light or glare that could substantially impact other properties (see Appendix A, p. 14-15). However, discussion of existing visual quality conditions and changes with the proposed project are included herein. Chapter II, Project Description, and Section III.A, Land Use, Plans, and Zoning, describe the project location, the existing built environment on the project site and in the vicinity, and planned development. The images illustrate basic massing and some architectural detail, but do not depict final architectural design. (See pp. 6 to 13 for Plans and Elevations.)

SETTING

Visual quality is normally comprised of elements such as building scale, height, architectural features and materials, patterns of buildings along street frontages, and views of public open space or plazas or of more distant landscape features such as hills, the Bay, or built landmarks such as bridges. These elements help define the sense of place in a visual context.

In general, the overall visual character of Golden Gate Park varies from place to place as the Park includes many diverse bodies of water, landscapes, and buildings of varying ages and styles. The historical landscape character of Golden Gate Park is primarily pastoral and naturalistic; however, the Park also includes a series of formal, organized spaces such as the Music Concourse. These formal spaces are generally surrounded by naturalistic borders or transition areas of landscaping that separate these regular, axial spaces from the rest of the Park and conceal them from long-range views. Special areas and features of the Park including naturalistic parkland, major meadows and lawns, major recreational areas, indigenous oak reserves, special horticultural areas, the Strybing Arboretum and Botanical Gardens, and the Music Concourse Area are identified in the *Golden Gate Park Master Plan FEIR* as locally significant recreational and visual resources.¹ The CAS can be described as sharing a common visual setting with the Music Concourse. The Music Concourse is

surrounded by naturalistic parkland, including trees and vegetation, outside the Concourse area.

The project site is on the south side of the Music Concourse in Golden Gate Park, bounded to the north by Academy Drive, to the west by the Shakespeare Garden, to the south by the Big Rec. Ball Field (on Middle Drive East) and to the east by a meadow and woods within the Park. Currently, the site is occupied by 12 buildings that comprise the existing CAS. The existing CAS buildings are about 40 feet in height with the roof of the Morrison Planetarium extending another 14 feet above the roofline, and set back towards the center of the building. These structures face Academy Drive south of the Music Concourse. The north elevation of the CAS appears as a continuous elevation finished in limestone, stucco and concrete, set back from Academy Drive, with a stairway and entrance platform approximately 17 feet above the roadway. The north elevation of the building is approximately 450 feet long, comprised of two classical revival style wings (African Hall to the east and North American Hall to the west), joined by a modern concrete entrance (Cowell Hall) in the center. A series of concrete steps lead up from Academy Drive to the entrance of the building. Landscape features on the project site include mature trees flanking the entrance, sloped lawn areas, and other mixed vegetation at the north elevation, mixed conifers and lawn areas adjacent to the west elevation and to the Shakespeare Garden, eucalyptus trees and mixed vegetation at the south elevation adjacent to Middle Drive East, and paved service areas to the east. The eastern boundary of the Shakespeare Garden is located approximately 14 feet from the west façade of the CAS. The loading area of the existing CAS is located about 40 feet from Shakespeare Garden and is visible from Middle Drive East.

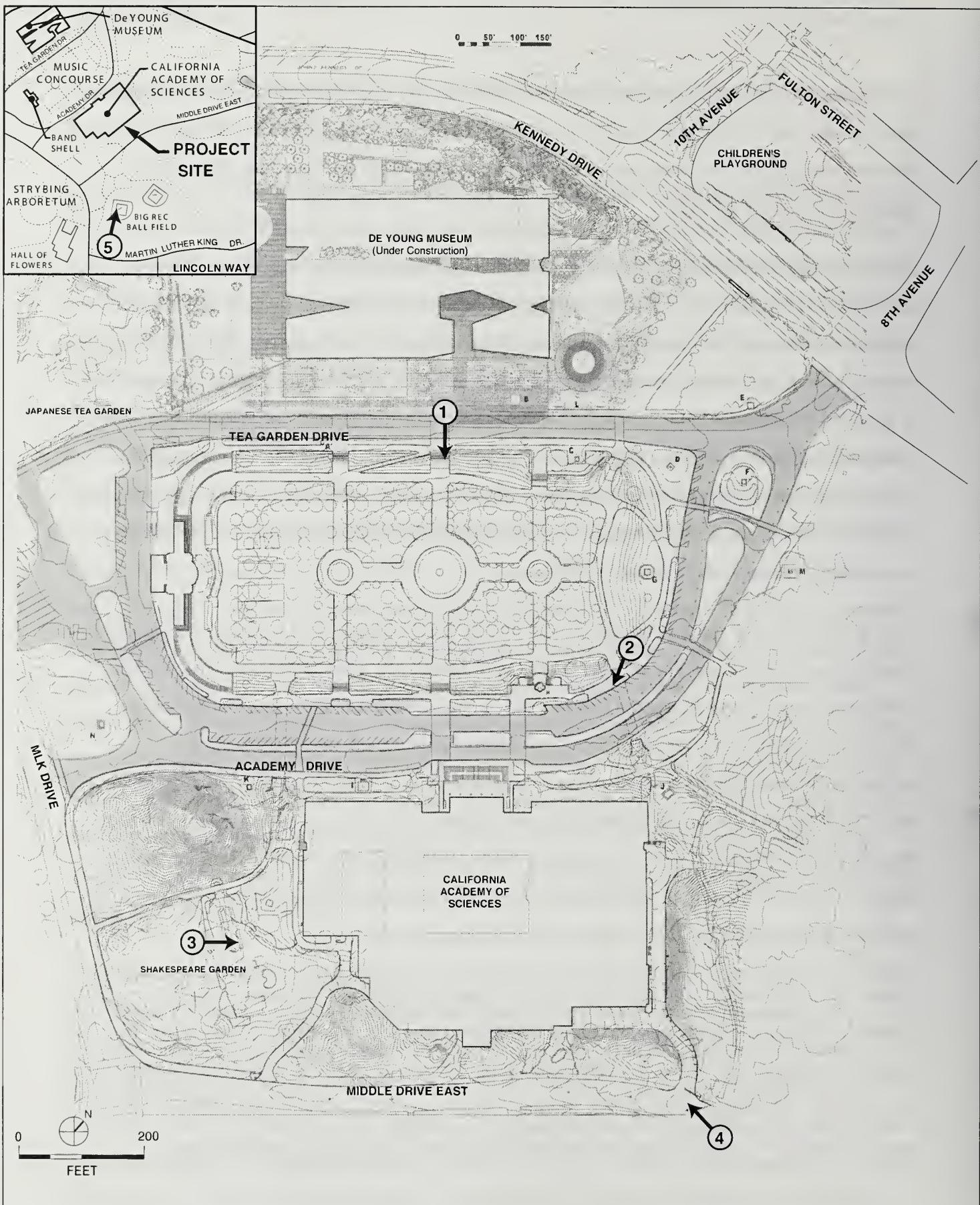
The Music Concourse is a formal public open space characterized by a symmetrical, oval plan, regularly spaced trees, seating and other landscape improvements such as fountains, approximately 10 feet below the grade of Tea Garden Drive; the Band Shell, also called the Spreckels Temple of Music, is at the west end of the Music Concourse. The Francis Scott Key monument is at the east end of the Music Concourse. The deYoung Museum site and the Asian Art Museum fronted approximately 500 feet along Tea Garden Drive north of the Music Concourse. The New deYoung Museum is under construction at its current site, and will be

oriented to the adjacent Concourse. The New deYoung Museum will include two main levels above grade, one level below grade, a varying roof height ranging from 33 to 48 feet, and a 160-foot tower at the northeast corner of the project site. The New deYoung Museum is planned to open in mid-2005.

These elements are part of the mix of cultural activities and pastoral landscapes of Golden Gate Park. As noted in Section III.C, Historic Resources, the Park as a whole is considered eligible for listing in the National Register of Historic Places. The Japanese Tea Garden has been found eligible for the National Register, and the Spreckels Temple of Music appears to be eligible. The Music Concourse area has been determined potentially eligible for the California Register of Historic Resources. The strong northeast-southwest axial plan of the Music Concourse provides short-range views of the buildings and historic landscaping features within the Concourse. Long-range views beyond the formal open space of the Concourse are obscured by mature trees and other vegetation.

Photographs showing representative views of the project site have been taken at five locations in the project vicinity (see Figure 17). These views include a view south from Tea Garden Drive near the deYoung Museum (Figure 18A); a view southwest from Tea Garden Drive near the northeastern end of the Concourse (Figure 19A); a view northeast from the Shakespeare Garden (Figure 20A); a view northwest from Middle Drive East near the Big Rec. Ball Field and the AIDS Memorial Grove (Figure 21A), and a view north from the Big Rec. Ball Field (Figure 21.1A). Viewpoints from outside the Park, such as from the Sunset District, were not selected as representative views of the project, as neither the existing CAS nor the proposed new CAS would be visible from these areas.

Figure 18A, view south from Tea Garden Drive near the deYoung Museum, shows the Academy through existing trees and landscaping features within the Music Concourse. The vegetated hilltop of Mt. Sutro, as well as the Sutro Tower, can be seen in the distance above the Academy. Buildings at the UCSF Medical Center can also be seen in the distance. As seen in Figure 19A, views from the southeastern corner of the Music Concourse near



SOURCE: Square One Productions, Gordon H. Chong & Partners

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 17 (REVISED): VIEWPOINT LOCATIONS



EXISTING VIEW 1



PROPOSED VIEW 1

10.22.02

SOURCE: Square One Productions

Note: These images illustrate basic massing with some architectural detail, but are not intended to represent final architectural design.

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 18: VIEW SOUTH FROM TEA GARDEN DRIVE NEAR THE deYOUNG MUSEUM



EXISTING VIEW 2



PROPOSED VIEW 2

10/22/02

SOURCE: Square One Productions

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 19: VIEW SOUTHWEST FROM THE MUSIC CONCOURSE



EXISTING VIEW 3



PROPOSED VIEW 3

10.22.02

SOURCE: Square One Productions

Note: These images illustrate basic massing with some architectural detail, but are not intended to represent final architectural design.

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 20: VIEW NORTHEAST FROM THE SHAKESPEARE GARDEN



EXISTING VIEW 4



PROPOSED VIEW 4

10.22.02

SOURCE: Square One Productions

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 21: VIEW NORTHWEST FROM MIDDLE DRIVE EAST



EXISTING VIEW 5



PROPOSED VIEW 5

Note: These images illustrate basic massing with some architectural detail, but are not intended to represent final architectural design.

Academy Drive include the Academy entrance, mature landscaping and lawn areas in the Music Concourse and along Academy Drive, parking along Academy Drive, and trees beyond the CAS along Middle Drive East and King Drive. The vegetated hilltop of Mt. Sutro can be seen rising above the Academy. Existing views looking northeast from the Shakespeare Garden includes portions of the Academy that are obscured by existing mature trees and landscaping at the west end of the site (see Figure 20A). The only visible portion of the building includes glimpses of the west-facing elevations, comprised of North America Hall, and the peaked roof enclosure within the Whale Courtyard. In Figure 21A, a view northwest from Middle Drive East, the rear driveway of the Academy and street parking along Middle Drive East are visible in the foreground. The southeast corner of the Academy (Wattis Hall) is visible beyond existing eucalyptus and mixed coniferous trees and shrubbery. On Figure 21.1A, a view north from Big Rec Ball Field, the existing Academy is seen through trees that are south of Middle Drive East.

As noted in the Golden Gate Park Master Plan EIR, views within the Park are generally “intimate” rather than “panoramic,” due to the “rolling topography and internal spaces bounded by stands of dense trees and vegetation.” As a result, the CAS is not visible from other areas within Golden Gate Park except for the immediate Music Concourse Area. Distant views of the project site from outside the Park may be visible from some locations in the Golden Gate Heights neighborhood, UCSF, or from Grand View Park. Views of the project site from Lincoln Way, Stanyan Street, Fulton Street and other nearby locations outside Golden Gate Park are completely obscured by trees within the Park and along its perimeter.

IMPACTS

SIGNIFICANCE CRITERIA

A project may result in significant adverse visual quality impacts if it (1) has demonstrable negative aesthetic effects on the character of the surrounding area, or (2) degrades or obstructs scenic views from public areas.

PROJECT EFFECTS

The proposed project would result in visual changes because it would demolish 11 of 12 existing buildings that compose the existing Academy. The proposed project would retain Simson African Hall and replace the remaining Academy structures, totaling approximately 350,000 sq. ft. on a 240,000 sq. ft. footprint, with a structure totaling approximately 390,000 sq. ft. on a reduced footprint of approximately 205,000 sq. ft. This increase in area on a smaller footprint is possible primarily because the project would substantially increase basement areas. The existing Academy structures are approximately 40 feet in height. The proposed project would include a landscaped roof, the base of which would be under 40 feet. Above the base, the landscaped roof would undulate, with two peak elements over the planetarium and rainforest exhibits reaching a height of about 67 feet, or approximately 13 feet beyond the highest existing point (Morrison Planetarium). These two peaks would be set back approximately 150 feet from the roof's edge along Academy Drive. An additional peak would appear over the Steinhart barrel vault. The roof would extend approximately 34 feet from the building's edge with a trellis structure, supported by a series of slender perimeter columns.

Visual simulations developed from four selected viewpoints and include basic architectural and landscape elements that would be incorporated in the project. The simulations include shading patterns on the new building that could result from the trellised roof overhang. The shading pattern is illustrative only, and would vary depending upon time of day and year, and cloud or fog conditions. These simulations, seen in Figures 18B through 21B, illustrate the overall height and massing proposed for the new CAS.

Looking south from Tea Garden Drive near the New deYoung Museum site, as illustrated in Figure 18B, views of the existing Academy would be replaced with views of the proposed project. Views would be primarily altered with changes in the architectural character of the Academy and the addition of the undulating roof. As discussed above, the north-facing facades would be partially shaded by the trellis roof overhangs. The general height, massing, and shape of the Academy would remain similar to its current form; with an increase in height

of about 13 feet from the roof peaks. From the deYoung Museum, the Academy would continue to be screened by trees and other landscaping in the Concourse. As shown in Figure 18B, the landscaped undulations which would rise above the proposed rainforest and planetarium exhibits and the Steinhart structure would be visible projections above the roofline, but would not block southerly views of Mt. Sutro or Sutro Tower. The vegetated nature of these rooftop elements, their color and form would be intended to blend in with the backdrop of trees. As a result, these changes would not result in a significant adverse impact on scenic views from the Concourse area. As seen in Figure 19B, the Classical Revival façade of Simson African Hall would continue to be visible from the Music Concourse. The new construction on the west end of the site fronting the Music Concourse would include stone, other materials, proportions and dimensions to reflect the overall character of North American Hall.

From the southeastern corner of the Music Concourse, views of the existing Academy would be replaced with views of the new Academy, as seen in Figure 19B. Views from this location would be altered with changes in the architectural character of the Academy and the roof overhangs projecting beyond Simson African Hall and the reconstructed North American Hall structure. The roof overhangs would include trellised openings and columns. The two mature conifer trees each approximately 35 feet in height which flank the main entrance of the existing CAS would be removed and new landscape elements including trees and lawn areas would be replaced. In this view, surface-level parking has been removed, assuming implementation of the GGPAC Projects, which would relocate all surface parking in the Concourse area to an Underground Parking Facility below the Concourse. Although not illustrated here, landscaping in this area would be replaced as part of the GGPAC Projects. Bicycle parking may also be provided near the Academy Drive entrance and is proposed to be disbursed and/or screened. As shown in Figure 19B, the three roof elements above the planetarium, rainforest, and Steinhart exhibits would partially obscure the tops of some tall trees that are now visible behind the existing Academy; however, the roof would be intended to appear as a park-like element unifying the elements of the facility and integrating the structure with the Park's adjacent landscaping.

As illustrated in Figure 20B, views of the project site from Shakespeare Garden would not be substantially altered. Views of the existing Academy structures would be replaced with views of the new buildings, including a glass curtain-wall façade. From this vantage point, the glass curtain wall of the west-facing facade and a portion of the overhanging roof can be seen.

Views from this location would be primarily altered with changes in the architectural character of the Academy, but the new building would remain partially screened by the mature trees and landscaping in the Shakespeare Garden, which would be retained. In addition, the overall height and massing of the project would not change from the existing Academy. The building would shift to the south and east by approximately 46 feet, further separating the CAS from the Shakespeare Garden. The adjacent loading area and service vehicle spaces would be below grade and therefore would not be visible from Shakespeare Garden. From this location, the west-facing façade would be over 80 feet further from the Garden compared to the existing CAS. The new Academy structure would be a continuous building, as opposed to the current mixture of building volumes that are visible from the Shakespeare Garden in Figure 20B. The undulating roof would only be visible from certain locations in the garden, and would not obstruct views beyond the Academy. The RC&A building would be set back approximately 105 feet from Shakespeare Garden, compared to a setback of approximately 14 feet from the existing CAS façade. The result would be an increased setback from the Garden of 91 additional feet from the façade of the CAS.

The westernmost edge of the proposed below-grade loading docks of the new CAS would be set back approximately 20 feet from the eastern boundary of Shakespeare Garden, compared to a setback of approximately 40 feet from the existing CAS loading area. The loading area of the new CAS would be mostly obscured from view from within Shakespeare Garden, as this facility would be below grade and partially screened by existing vegetation surrounding the Garden. Through increased setbacks, below-grade loading facilities, and existing and planned landscaping in this location, the proposed CAS would be considered to have a positive visual effect on Shakespeare Garden, and would enhance enjoyment of this recreational area in the Park.

Views from Middle Drive East, at the south side of the Academy, would be primarily altered with changes in the architectural character of the Academy, including a replacement of the light-colored concrete building mass with an all-glass curtain wall, increased set back from Shakespeare Garden, as well as the trellised roof overhang and vegetated roof peak (see Figure

21B). In general, most facades constructed of light-colored concrete would be replaced with clear glass curtain walls, which, although transparent, also appear darker in color due to the properties of glass. The overhanging roof would add further shade to these facades, making the building appear darker overall than the existing facility. As with views of existing buildings on the project site, views of the proposed structure from Middle Drive East would be partially obstructed by trees along its south and southwest sides. Depending on the final configuration of the loading dock, certain other trees and shrubbery seen in Figure 20B could be eliminated and replaced with other landscape materials to partially screen the project from the Middle Drive East. In Figure 21B, a mature eucalyptus tree is eliminated and the replacement materials are not depicted. The project design has been revised include the retention of that tree through utility and roadway configuration. In addition, the service driveway would be eliminated in this location, and the sidewalk extended and replanted with trees. The new roof line would be visible, but would not block or screen distant views from this location. Similarly, depending on location and any screening elements, new bicycle racks may be visible from Middle Drive East, and Academy Drive, but would not block distant views from these locations. The future underground collections growth space would be constructed beneath the hillside adjacent to Middle Drive East and would not be visible from the roadway. Although not shown in Figure 21B, the future collections space would have a landscaped roof designed to appear as an extension of the park. Figure 8 in Chapter II, Project Description shows a conceptual section elevation of this area, including the landscaped roof. As with the balance of the new CAS facility, the collection growth space includes a landscape plan which is designed to retain important mature trees where feasible, and to provide for replanting. Chapter IV describes an Improvement Measure which would ensure that the project plans for the collection growth space would include appropriate landscape retention and replanting elements and ensure that important landscape elements remain.²

On Figure 21.1B, portions of the new Academy would be visible from the Big Rec. Ball Field area to the south. The views would be intermittent within the existing tree cover south of Middle Drive East.

No significant visual impacts from Phase I of the GGPCA Projects were identified in the GGPCA Projects Draft EIR, primarily because it would be constructed underground, and therefore concealed from view. Phase II, as an unfunded component of the GGPCA projects, would include a proposed tunnel and ramp to the Underground Through Street from Middle Drive East, if implemented in the future. About 50 trees would be removed and a portion of the hillside to the east of the CAS would also be graded to accommodate the tunnel. As

discussed in the GGPCA Draft EIR, these changes would alter the view north from Middle Drive East looking towards the CAS, but would not change the overall visual character of the Park. The existing service road at the east side of the CAS building is already below the level of Middle Drive East. The proposed tunnel and ramp would also be below the roadway level of Middle Drive East and would thus not significantly alter the visual character of Middle Drive East or the Music Concourse area. The new construction would also not obstruct any scenic views. From a cumulative standpoint, when both the proposed CAS building and the Underground Through Street tunnel entrance at Middle Drive East would be viewed together from this location, the visual change would be noticeable, but would not significantly diminish the overall visual quality or character of the Park. The existing service road on the east side of the CAS is below the level of Middle Drive East. The proposed new design of the CAS would remove this descending service roadway. The GGPCA Phase II tunnel and ramp would also descend below the level of Middle Drive East, and would thus be a similar feature as the existing service drive. The GGPCA Projects Draft EIR found this would not significantly alter the visual characteristics of that portion of Middle Drive East. The new construction would also not obstruct any scenic views.³ If Phase II were implemented in the future, it would be necessary to review final plans to confirm that there would be no adverse visual impacts on the CAS facility.

Visual quality in the project area was assessed based upon how people see and experience the environment. Generally, the perception of visual quality is created by the impression formed when viewing a place from several vantage points. The degree of visual sensitivity and visibility of the project area is related to those elements that help to define the character and context of the site. With this in mind, a visual survey of the project area was undertaken to assess the existing character of the Park, landscaping characteristics, the system of pedestrian paths, streets, and open space, and the quality of the views into the proposed site from public vantage points and circulation routes. While conclusions about visual quality are, to some extent, subjective, the proposed project, with a smaller overall footprint and a roof height approximately 13 feet higher than the existing building (set back about 150 feet from the roof edge) would not substantially change the defining characteristics of the site and setting, such as the building's orientation on the site and to the Music Concourse, the landscape character, or

the pedestrian paths and circulation routes. While the vegetated and undulating roof with trellised overhangs would be the most visual change, the green and naturalistic form is intended to relate to the surrounding parkland and would be designed to appear as an extension of ‘open space’ in the Park.

The proposed project would not change the physical arrangement or use of Golden Gate Park. The project would be accomplished within the existing Academy site and on a reduced footprint. The project would not affect the formal landscape character of the Music Concourse itself, and the proposed project landscape plan would not deter the preservation and enhancement of the Park’s historical landscape character. As noted in Section III.A, Land Use, Plans, and Zoning, the proposed project would not affect implementation of Golden Gate Park Master Plan Music Concourse Special Area Plan, such as landscape improvements in the Concourse itself. In these ways, the project would be consistent with the *Golden Gate Park Master Plan* (see Section III.A for a summary of Park Master Plan Policies).

Overall, the project would alter views of the site from within the Concourse, Tea Garden Drive, Academy Drive, and Middle Drive East and would replace views of the existing Academy. Although a detailed landscape plan has not been completed, landscape elements along Academy Drive and Middle Drive East immediately adjacent to the site would be replaced in keeping with the existing landscape character of the Park. The proposed project would not affect Special Horticultural Areas or substantially change areas of Naturalistic Parkland, or other important landscape features or areas as identified in the *Golden Gate Park Master Plan*. As discussed in Section III.C, Historical Resources, the new Academy would not adversely affect the ability of the Concourse to qualify as a contributing part of a larger Golden Gate Park National Historic District or adversely affect the Music Concourse itself, individually eligible for listing in the California Register as an historic landscape. Because the new CAS would be sited generally in the same location and orientation as the existing facility (on a smaller footprint), its physical relationship with the Concourse and its other structures would not substantially change as a result of the project. The new Academy would retain the axial north-south relationship with the Music Concourse and the deYoung Museum.

SUMMARY

The new Academy's compatible scale and location would not diminish or remove features that qualify Golden Gate Park for the National Register of Historic Places. The project would not substantially change the pastoral character of landscape along Middle Drive East, King Drive, or Kennedy Drive. The change in views would not substantially degrade or obstruct scenic views from public open space or plaza areas within Golden Gate Park and would be consistent with elements of the *Golden Gate Park Master Plan* including the Park Landscape Element as they relate to visual quality. The proposed structure would have an overall scale, massing and continuous frontage along the Music Concourse similar to the existing facility. While the architectural character of the proposed Academy would differ from that of the existing Academy, the overall height, scale and massing of the new structure would not demonstrate a negative aesthetic effect on the visual character of the surrounding area. As such, the proposed project would not have a significant adverse effect on visual quality.

NOTES — Visual Quality

¹ San Francisco Planning Department, *Golden Gate Park Draft Master Plan Final Environmental Impact Report*, Case No. 95.243E, certified July 9, 1998, pp. 104-105.

² SWA, Re: California Academy of Sciences, letter from Lawrence Reed of SWA to Kyle Glenn, Gordon H. Chong & Partners, February 26, 2003. This letter is available for public review by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.

³ San Francisco Planning Department, *Golden Gate Park Concourse Authority Projects Draft Environmental Report*, Case No. 20001.911E, December 14, 2002.

E. AIR QUALITY

SETTING

APPLICABLE PLANS AND REGULATIONS

Ambient Air Quality Standards

Federal, state, and local laws and regulations form the foundation for controlling air pollution. The federal *Clean Air Act*, including amendments of 1990, and the *California Clean Air Act of 1988* specify that federal and state regulatory agencies set upper limits on the airborne concentrations of six criteria air pollutants. National Ambient Air Quality Standards exist for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter, and lead.¹ Reactive organic gases (ROG) and oxides of nitrogen (NO_x) are also regulated as precursor contaminants that react in the atmosphere to form ozone, and particulate matter is regulated as inhalable particulate matter ten microns or smaller in diameter (PM₁₀).

Federal and state standards for these pollutants are upper limits designed to protect all segments of the population including those most susceptible to the pollutants' adverse effects (e.g., children, the elderly, people weak from illness or disease, or persons doing heavy work or exercise).

Air Quality Management Plans

The federal *Clean Air Act*, as amended, and the *California Clean Air Act* provide the legal framework for attaining and maintaining the ambient air quality standards. Both the federal and state acts require that the California Air Resources Board designate as "nonattainment areas" portions of the state where federal or state ambient air quality standards are not met. Where a pollutant exceeds standards, air quality management plans must be formulated that demonstrate how the standards will be achieved. These laws also provide the basis for the implementing agencies to develop mobile and stationary source performance standards.

BAAQMD is primarily responsible for planning, implementing, and enforcing the federal and state ambient standards in the Bay Area. EPA approval of the *1982 Bay Area Air Quality Plan*

(referred to as the *1982 Plan*), which indicates how the BAAQMD will implement federal air quality requirements, resulted in the *1982 Plan* being incorporated into the *State Implementation Plan*. The region's *State Implementation Plan* is a compilation of plan components and air pollution control regulations that when taken together are designed to enable the region to attain and maintain the federal standards. Along with the BAAQMD, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments also contribute to the *State Implementation Plan*. The BAAQMD updated the *1982 Plan* and adopted the *Bay Area '91 Clean Air Plan* to implement the requirements of the *California Clean Air Act of 1988*. As required by the *California Clean Air Act* and subsequent 1992 amendments, the BAAQMD also prepared the *1994 Clean Air Plan Update*, the *Bay Area '97 Clean Air Plan*, and the *Bay Area 2000 Clean Air Plan*. The state ozone standard and the state PM₁₀ standard are exceeded (violated) in the region. To meet the state ozone standard, the BAAQMD adopted the *2000 Clean Air Plan* on December 20, 2000 and submitted it to the California Air Resources Board (ARB) as required by the *California Clean Air Act*. The *2000 Clean Air Plan* includes a control strategy review to ensure that the plan continues to include "all feasible measures" to reduce ozone. No state plan is required to meet state PM₁₀ measures.

In 1998, the Bay Area was redesignated as nonattainment for the federal ozone standards. Under the EPA's direction, the BAAQMD prepared and submitted the *Bay Area Ozone Attainment Plan* in June 1999 (referred to as the *1999 Plan*) as a revision to the *State Implementation Plan*. This attainment plan was partially rejected by EPA. The parts of the *1999 Plan* that were disapproved include ozone attainment assessment, consistency of regional transportation plans and programs with air quality attainment plans, and the Reasonably Available Control Measure demonstration. In response to EPA's disapproval of the *1999 Plan*, a *Bay Area 2001 Ozone Attainment Plan* (Final Plan) was prepared in June 2001 by the BAAQMD, MTC, and the Association of Bay Area Governments. This Final Plan was initially rejected by the California ARB prior to its submittal to the EPA. Addenda to this plan were presented to the California ARB in October 2001, approved, and submitted to the EPA for approval of the Final Plan. On February 14, 2002, EPA determined that the motor vehicle emission budgets in the Final Plan are adequate for conformity purposes.

The State Implementation Plan measures for reducing emissions of reactive organic compounds and nitrogen oxides affect all source categories. Emissions limitations are imposed upon sources of air pollutants by rules and regulations promulgated by the federal, state, or local agencies. Mobile sources of air pollutants are largely controlled by federal and state agencies through emission performance standards and fuel formulation requirements. The BAAQMD regulates stationary sources through its permitting and compliance programs. The BAAQMD is responsible for implementing stationary source performance standards and other requirements of federal and state laws.

Local environmental plans and policies also recognize community goals for air quality. The *San Francisco General Plan* includes the 1997 Air Quality Element.² The objectives specified by the City include the following:

- Objective 2: Reduce mobile sources of air pollution through implementation of the Transportation Element of the *General Plan*.
- Objective 3: Decrease the air quality impacts of development by coordination of land use and transportation decisions.
- Objective 5: Minimize particulate matter emissions from road and construction sites.
- Objective 6: Link the positive effects of energy conservation and waste management to emission reductions.

AIR QUALITY CONDITIONS

Climate

The San Francisco Bay Area's regional meteorological conditions are cool and dry in the summers and mild and moderately wet in the winters. A daytime sea breeze provides fresh air to the Bay Area, but also tends to cause temperature inversions by positioning cool surface air underneath warmer upper-air. The inversions limit vertical motion of pollution and cause pollution potential to be the highest in the sheltered valleys throughout the region and in the subregions that are not directly affected by the marine air entering through the Golden Gate.³

Regional and Local Air Quality

The nine-county San Francisco Bay Area Air Basin has a history of recorded violations of federal and state ambient air quality standards for ozone, carbon monoxide, and inhalable particulate matter. Since the early 1970s, the Bay Area has made progress toward controlling these pollutants. The progress has led the area to attaining all state and federal standards except those for ozone and PM₁₀. The Bay Area is an ozone nonattainment area for state and federal purposes. Although the Bay Area does not meet the state standard for PM₁₀, it meets the federal standard.

The criteria pollutants for which national and State standards have been promulgated that are most relevant to air quality planning and regulation in the Bay Area are ozone, fine suspended particulate matter, and carbon monoxide. Each of these is briefly described below.

- *Ozone* is a gas that is formed when reactive organic gases (ROGs) and nitrogen oxides (NOx), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- *Fine Suspended Particulate Matter (PM₁₀)* consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM₁₀, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM₁₀ is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- *Carbon Monoxide (CO)* is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and motor vehicles operating at slow speeds are the primary source of CO in the Bay Area, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- *Toxic Air Contaminants* refer to a diverse group of air pollutants that can affect human health, but have not had ambient air quality standards established for them.

The BAAQMD operates air quality monitoring stations in San Francisco at 10 Arkansas Street (at the foot of Potrero Hill) and at 939 Ellis Street (near the Civic Center). Either location would probably be representative of conditions in the project vicinity; however, the Ellis Street station monitors only carbon monoxide. Peak carbon monoxide concentrations observed

at the Ellis Street station tend to be higher than those observed at Arkansas Street. Ozone and particulate matter data at the Arkansas Street station show the following:

- During the period of 1999 through 2001, the state 1-hour ozone standard and the federal 1-hour and 8-hour ozone standards were not exceeded (violated) on any day at the Arkansas Street station.
- During the period of 1999 through 2001 at the Arkansas Street station, the state 24-hour PM₁₀ standard was exceeded in no more than 10 percent of the samples per year, the federal 24-hour standard was not exceeded at all, and the state and federal annual standards were not exceeded at all. The federal standards were not exceeded in the district.

The regional and local air quality data show that the region has made considerable progress toward meeting the state and federal standards. At this time, the region does not meet ozone standards, and violations of the state and federal standards for ozone continue to persist.

Pollutants tend to be carried away from San Francisco into the more sheltered areas of the region and cause violations of the standards there. In this manner, regional benefits would occur with efforts to control San Francisco's emissions.

EXISTING LOCAL AIR QUALITY

Land uses in the vicinity of Golden Gate Park include residential, office, commercial, and institutional uses. Motor vehicles are the primary source of pollutants in the Park. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed national and/or State standards for CO are termed CO "hotspots." These hotspots can become a problem if people are exposed to the high concentrations for long periods of time (i.e., one hour or more when compared to the national and State 1-hour standards and eight hours or more when compared with the national state 8-hour standards). The national 1-hour standard is 35.0 parts per million (ppm), and the State 1-hour standard is 20.0 ppm. The 8-hour national and State standards are 9.0 ppm and 9.0 ppm, respectively.

EXISTING SITE EMISSIONS

The California Academy of Sciences contains 12 buildings and houses the Natural History Museum, the Morrison Planetarium, and the Steinhart Aquarium. In all, the Academy has a

total of approximately 347,000 square feet of building space. Existing air emissions from the Academy are generated by stationary sources, such as heating, ventilation, and air-conditioning (HVAC) equipment; landscape maintenance equipment; and motor vehicle trips. Motor vehicles are the primary source of air pollutant emissions associated with the California Academy of Sciences.

IMPACTS

SIGNIFICANCE CRITERIA

The BAAQMD CEQA Guidelines identifies significance criteria to assist lead agencies in evaluating potential air quality impacts of projects. The City of San Francisco utilizes these criteria when evaluating proposed development projects and plans. As such, the proposed project may result in significant air quality impacts if it (1) causes localized CO concentrations near congested intersections to exceed national and/or State standards or makes a cumulatively considerable contribution to CO concentrations that exceed standards without the project, (2) generates new sources of operational emissions that generate 80 pounds per day (ppd) of ROG, NOx, or PM₁₀, or (3) generates objectionable odors affecting a substantial number of people.

PROJECT EFFECTS

Construction Effects

Demolition of existing buildings and construction of the new facility is expected to occur over a period of approximately 27 months. Four types of activities would be expected to occur and generate emissions during construction. First, the existing structures would be demolished and existing surface features cleared. Following demolition, the development site would be excavated and/or graded to accommodate the new buildings and surface improvements. The facility would then be constructed and readied for use. Finally, new landscaping would be planted around the project site.

The 27-month construction period is considered to be short-term and temporary. This is not to say that construction emissions could not cause adverse effects on air quality. Construction

activities would generate airborne dust that could adversely affect the surrounding area. The principal pollutant of concern would be PM₁₀.

The *BAAQMD GEQA Guidelines* recommends an analytical approach that obviates (does away with) the need to quantitatively estimate and evaluate construction emissions. Because construction-related PM₁₀ emissions primarily affect the area surrounding a project site, the BAAQMD recommends that all dust control measures that the BAAQMD considers to be feasible, depending on the size of the project, be implemented to reduce the localized impact to the maximum extent. The measures that would apply to the proposed project are included in Chapter IV, Mitigation Measures:

- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the construction site.
- Install wind breaks at the windward sides of the construction areas
- Suspend excavation and grading activities when wind (as instantaneous gusts) exceeds 25 miles per hour.

Implementation of these measures would be consistent with Objective 3 of the *San Francisco General Plan Air Quality Element adopted in 1997 and updated in 2000*.

With regard to construction equipment and construction employees, the BAAQMD does not consider the emissions generated by these sources to cause a significant impact. One of the reasons for this is that the construction industry is an existing source of emissions within the Bay Area, and the entire state. In general, construction equipment operates at one site for a short-term basis and, when finished, then moves on to a new construction site. The same situation occurs for the construction employees who make a living going from one site to another doing similar construction work. To minimize daily emissions, however, construction

equipment should be kept properly in tune at all times and should be shut off when not being actively operated for more than five minutes.

Because these measures would be implemented in accordance with standard City practice, construction activities associated with the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. This is a less-than-significant significant impact.

Construction activities could generate airborne odors associated with the operation of construction vehicles (i.e., diesel exhaust) and the application of architectural coatings. These emissions would occur during daytime hours only and would be isolated to the immediate vicinity of the construction sites and activity. As such, they would not affect a substantial number of people or cause a significant impact.

Operational Effects

When completed, attendance is expected to increase at the new CAS facility. The daily emissions of air pollutants would also increase due to the increased number of motor vehicles used by the visitors to the facility. The net increase in daily operational emissions has been calculated using the URBEMIS 2001 emissions model and the traffic volumes predicted for the project in the *New California Academy of Sciences Transportation Study*.⁴ The results of this analysis are presented in Table 14 for weekdays, Saturdays, and Sundays, along with the thresholds of significance recommended by the BAAQMD. The project emissions calculations worksheet is provided in Appendix B. As shown, the net increase in daily operational emissions would not exceed the recommended thresholds. Therefore, this impact would be less than significant.

TABLE 14
FUTURE DAILY OPERATIONAL AIR QUALITY EFFECTS

Source of Emissions	Net increase in Daily Emissions in Pounds per Day		
	ROG	NOx	PM10
New Weekday Trip Generation	20.3	20.6	12.35
New Saturday Trip Generation	19.4	16.6	9.2
New Sunday Trip Generation	19.7	18.7	10.9
Maximum Daily Thresholds	80.0	80.0	80.0

Source: EIP Associates, 2002.

The future collections growth space would not be a significant source of air emissions as it would not involve additional patrons and would not require substantial new staffing. Accordingly, it would generate few, if any, additional vehicular trips.

The BAAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak-hour turning volumes to the existing ambient CO air concentrations. For this analysis, CO concentrations were calculated based on a simplified CALINE4 screening procedure developed by the BAAQMD and presented in its *CEQA Guidelines*. The simplified model is intended as a screening analysis in order to identify a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations.

Maximum existing CO concentrations were calculated for the intersections evaluated in the *New California Academy of Sciences Transportation Study* (Wilbur Smith Associates, 2003) that operate at level of service (LOS) D, E, or F (these intersections have greater congestion and, therefore, higher localized concentrations of CO). The results of these calculations are presented in Table 15 for representative receptor locations at 50 feet from each roadway. These distances were selected because they represent locations where a person may be living, working, or resting at the Park for more than one or eight hours at a time. As shown, under worst-case conditions, existing CO concentrations near all of the study area intersections do not exceed national or State 1-hour and 8-hour ambient air quality standards.

As shown in Table 15, future CO concentrations near these intersections would not exceed the national 35.0 ppm and State 20.0 ppm 1-hour ambient air quality standards or the national 9.0 ppm and State 9.0 ppm 8-hour ambient air quality standards when the CAS is operational. Therefore, sensitive receptors located in close proximity to these intersections would not be exposed to substantial pollutant concentrations, and the potential impacts of the proposed project would be less than significant.

TABLE 15
LOCALIZED CARBON MONOXIDE CONCENTRATIONS

Intersection	CO Concentrations in Parts per Million ^{1,2} at 50 Feet from Roadway					
	Existing		Existing Plus Project (2005)		2015 Cumulative	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Weekend Traffic						
Park Presidio/Fulton	11.7	8.2	10.4	7.3	9.8	6.9
Fulton/Arguello	8.0	5.6	7.6	5.3	7.3	5.1
Fulton/Stanyan	8.5	6.0	7.7	5.4	7.6	5.4
MLK/Crossover	12.5	8.8	11.0	7.7	10.3	7.2
Lincoln/Nineteenth	12.2	8.5	10.8	7.5	10.1	7.1

Source: EIP Associates, 2002. Calculation sheets are provided in Appendix B.

Notes:

1. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.
2. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

CUMULATIVE PROJECT EFFECTS

The BAAQMD neither recommends quantified analyses of cumulative construction emissions nor provides thresholds of significance that should be used to assess cumulative construction impacts. As discussed previously, the construction industry is an existing source of emissions within the Bay Area. Construction equipment operates at one site for a short-term basis and, when finished, then moves on to a new construction site. The same situation occurs for the construction employees who make a living going from one site to another doing similar construction work. Because (1) construction activities would be temporary, (2) the contribution to the cumulative context is so small as to be virtually immeasurable, and (3) all

of the appropriate and feasible construction-related measures recommended by the BAAQMD would be implemented in accordance with standard City practice, the contribution of construction emissions associated with the proposed project would not be cumulatively considerable.

With regard to operational emissions, the BAAQMD recommends several methodologies to determine the cumulative impacts of individual projects. For any project – such as the proposed California Academy of Sciences – that does not have significant operational air quality impacts, the determination of significant cumulative impact should be based on an evaluation of the consistency of the project with the local general plan and of the general plan with the current Clean Air Plan.

The *San Francisco General Plan* includes the *1997 Air Quality Element*, updated in 2000. This element is consistent with the *2000 Clean Air Plan*. The proposed project is consistent with the land use designations for the site and is consistent with the *Mid-Market Redevelopment Plan*. As discussed previously in this section, the fugitive dust control measures that would be implemented during project construction are consistent with Objective 3 of the *San Francisco General Plan Air Quality Element* update. In addition, no significant PM₁₀ sources would be associated with the project beyond construction. For these reasons, the operational characteristics of the proposed project would not cause a cumulatively considerable increase in regional air pollutants.

Table 16 shows the future CO concentrations at the study intersections in the vicinity of the project site in 2015 with cumulative development that includes the Academy of Sciences and the Golden Gate Concourse Authority Projects. Localized concentrations of CO would change as a result of cumulative growth in the project vicinity however, as shown, future CO concentrations near these intersections would not exceed the national 35.0 ppm and State 20.0 ppm 1-hour ambient air quality standards or the national 9.0 ppm and State 9.0 ppm 8-hour ambient air quality standards. Therefore, sensitive receptors located in close proximity to these intersections would not be exposed to substantial pollutant concentrations, and the impact of cumulative development would not be significant.

NOTES — Air Quality

- ¹ National Ambient Air Quality Standards have been established for criteria pollutants, named for the "criteria" documents that justified their regulation.
- ² City and County of San Francisco, Planning Department, *Air Quality - An Element of the General Plan of the City and County of San Francisco*, July 1997, updated in 2000.
- ³ BAAQMD, *BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans*, April 1996, Revised December 1999, Appendix D.
- ⁴ Wilbur Smith Associates. *New California Academy of Sciences Final Transportation Study*, March 7, 2003 prepared for City and County of San Francisco Planning Department. Case No. 2002-0782!

F. SHADOW

SETTING

The existing California Academy of Sciences casts shadows in the project vicinity, as shown in Figures 21-25.

IMPACTS

SIGNIFICANCE CRITERIA

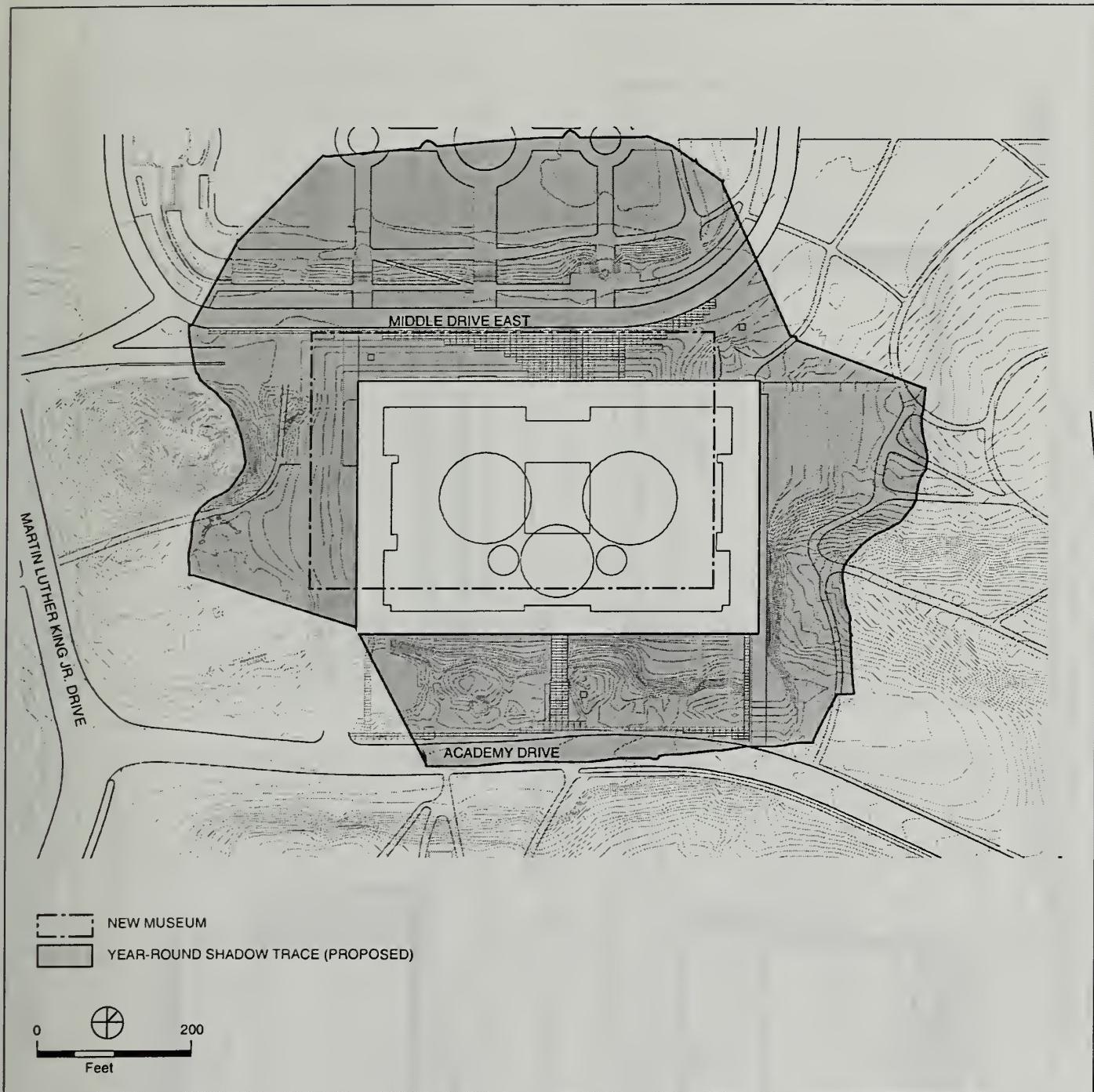
City Planning Code Section 295, adopted in 1984 pursuant to voter approval of Proposition K, prohibits the issuance of building permits for structures over 40 feet in height that would cast shade on or shadow property under the jurisdiction of, or designated to be acquired by, the Recreation and Park Commission (between one hour after sunrise to one hour before sunset at any time of year), unless the City Planning Commission, in consultation with the General Manager of the Recreation and Park Commission, determines that the shade would not have a significant adverse impact on the use of such property. Golden Gate Park is under the jurisdiction of the Recreation and Park Department, and is subject to Section 295.

The CAS facility is under the exclusive management and control of the CAS Board of Trustees. As part of the New deYoung Museum approval process, it was determined that shadow impacts on the deYoung site itself (as opposed to adjacent areas) were not subject to Section 295 because the site was under the jurisdiction of the Fine Arts Museums of San Francisco, and not the Recreation and Parks Commission, for purposes of Section 295. In addition, Section 295(a)(3) restrictions do not apply to “structures to be constructed on property under the jurisdiction of, or designated for acquisition by, the Recreation and Park Commission for recreation and park-related purposes.” Because the CAS project involves the replacement of an existing structure recognized in the Golden Gate Park Master Plan, this exclusion may also apply. However, for purposes of analysis, this EIR assumes that the criteria of Section 295 would apply. Pursuant to Section 295, in 1989, the Planning Commission and the Recreation and Park Commission adopted criteria for evaluating the significance of new shadow on 15 parks in the general downtown area. However, no formal

criteria for the significance of new shadow in Golden Gate Park were adopted; thus the analysis is a case-by-case review.

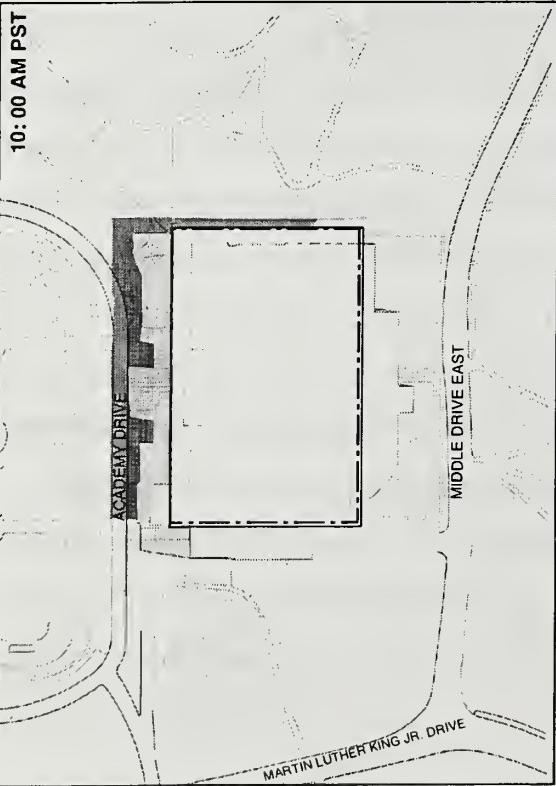
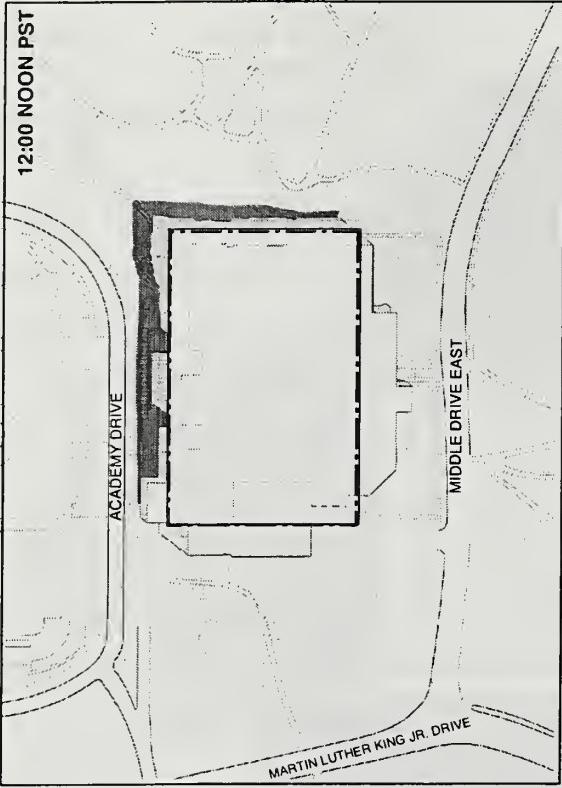
SHADOW EFFECTS

Figure 22 shows the maximum year-round extent of the project shadow between one hour after sunrise to one hour before sunset. The figure shows the shadows without other structures in the Park, and without regard to existing landscaping or trees in the Park. The shading patterns account for topography near the CAS. The varying outline of the shadow trace reflects higher ground near the Rhododendron Dell to the northeast and near the Shakespeare Garden to the southwest, as well as the lower elevation of the Music Concourse bowl to the northwest. (Higher elevations shorten shadows, while lower elevations lengthen shadows.) Figure 21 outlines the progression of shadows that would be cast by the new building and roof during the course of the day, from one hour after sunrise to one hour before sunset, throughout the year. Figure 22 does not illustrate the smaller areas that would be shaded at specific times of day or year, such as those shown in Figures 23-26, below. The figure is primarily a tool for indicating the maximum distance that the new shading could potentially reach. The two highest peaks of the new undulating roof would reach 67 feet, or approximately 13 feet beyond the highest existing point (Morrison Planetarium). These two peaks would be set back approximately 150 feet from the roof's edge along Academy Drive and would not create shadows beyond the roof's edge. New shadows would be created, however, by the new overhanging roof, which would extend approximately 34 feet on all sides beyond the existing roof. The overhanging roof would have trellised openings. Although the trellis design has not been finalized, the plans call for most of the overhang to be trellised. Figures 22-26 conservatively illustrate shadows that would occur with a solid overhanging roof. However, any trellising would allow sunlight to penetrate and would reduce shadowing compared to the shadow conditions illustrated. Figures 18B-21B in Section III.D, Visual Quality, attempt to illustrate how the trellised openings may appear, but should not be considered a final design. The future collections growth space would be underground, and would not therefore create any new shadows.



SOURCE: CADP Inc., EIP Associates

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 22: YEAR-ROUND SHADOW TRACE



December 21

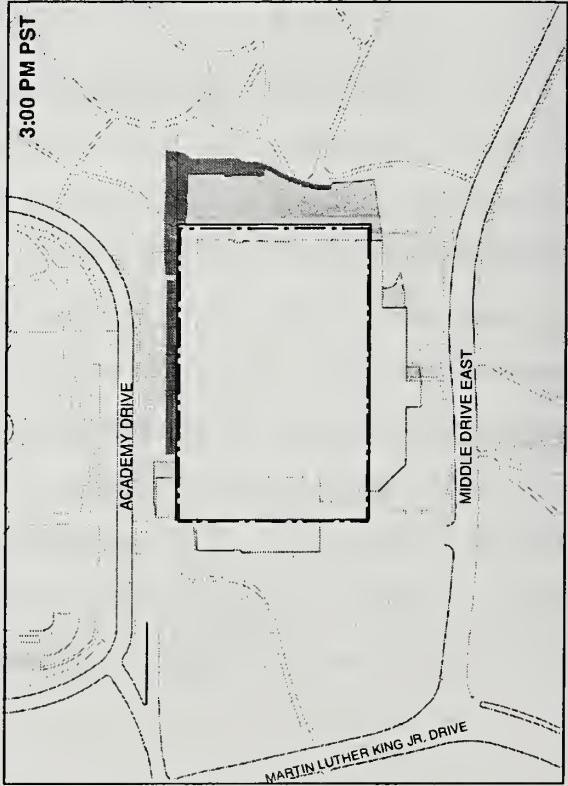
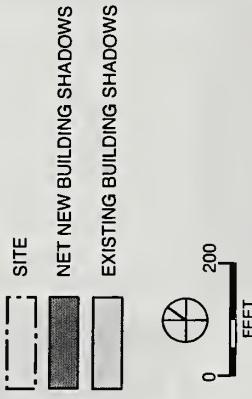
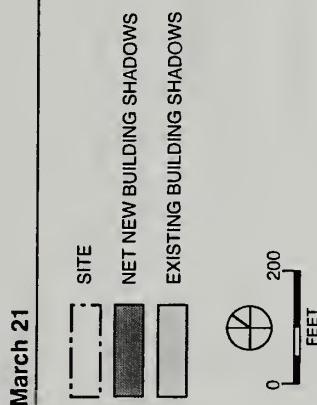
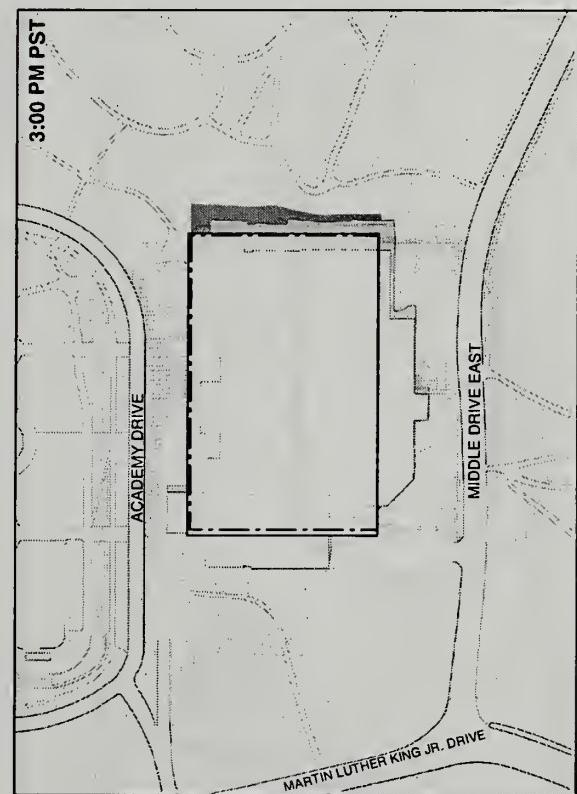
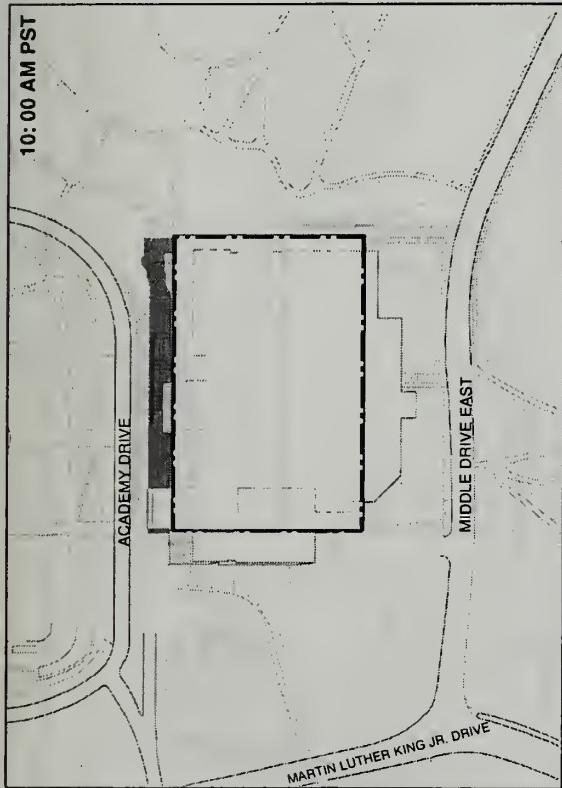
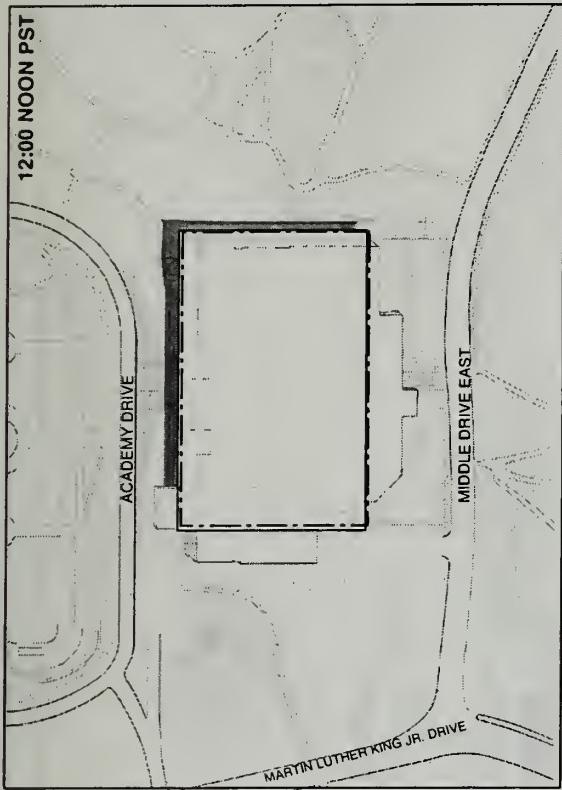


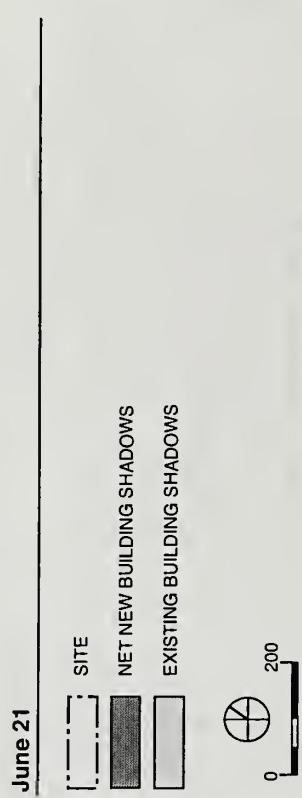
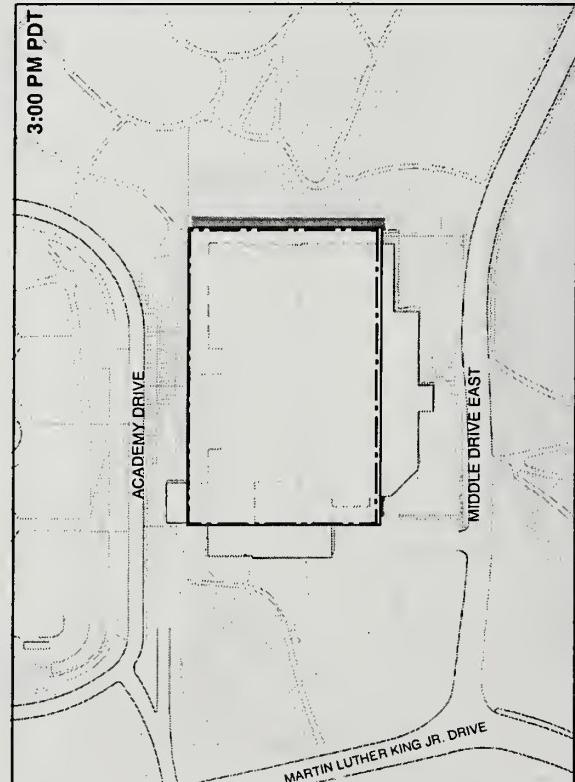
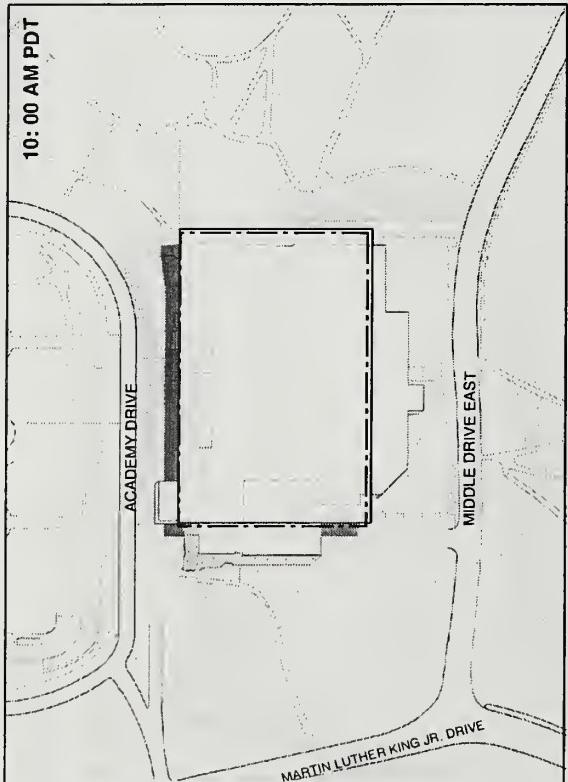
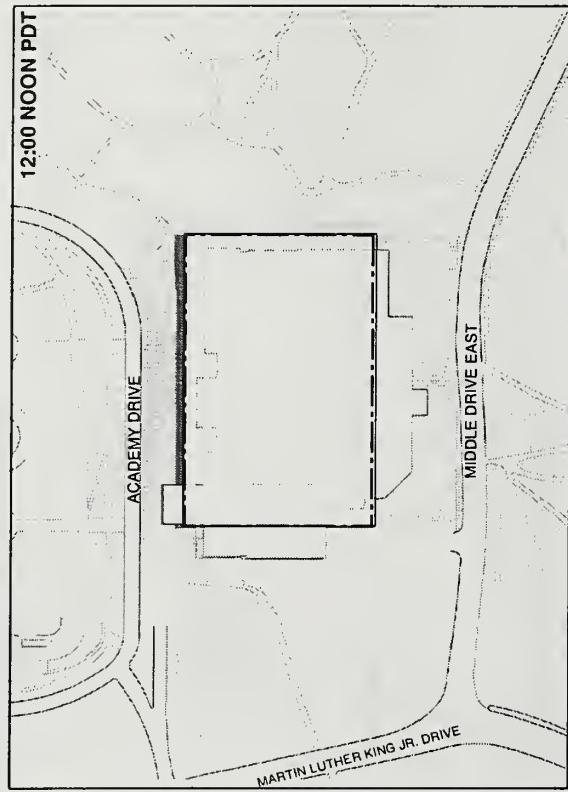
FIGURE 23: SHADOW PATTERNS - DECEMBER 21 (10 A.M., NOON, 3 P.M. PST)

CALIFORNIA ACADEMY OF SCIENCES PROJECT



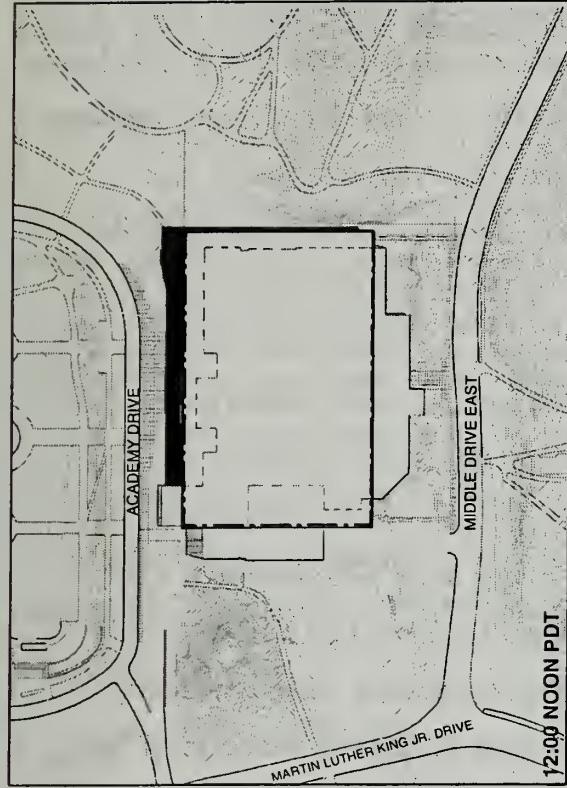
SOURCE: CADP, Inc

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 24: SHADOW PATTERNS - MARCH 21 (10 A.M., NOON, 3 P.M. PST)

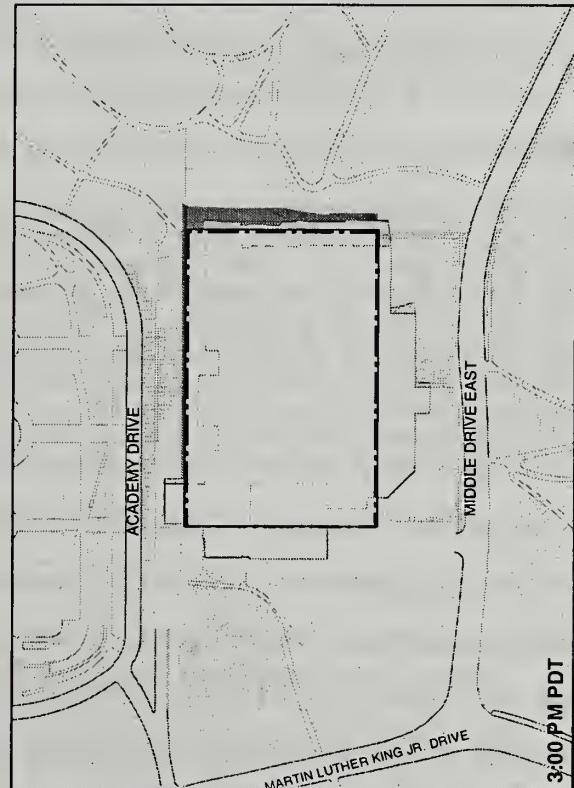
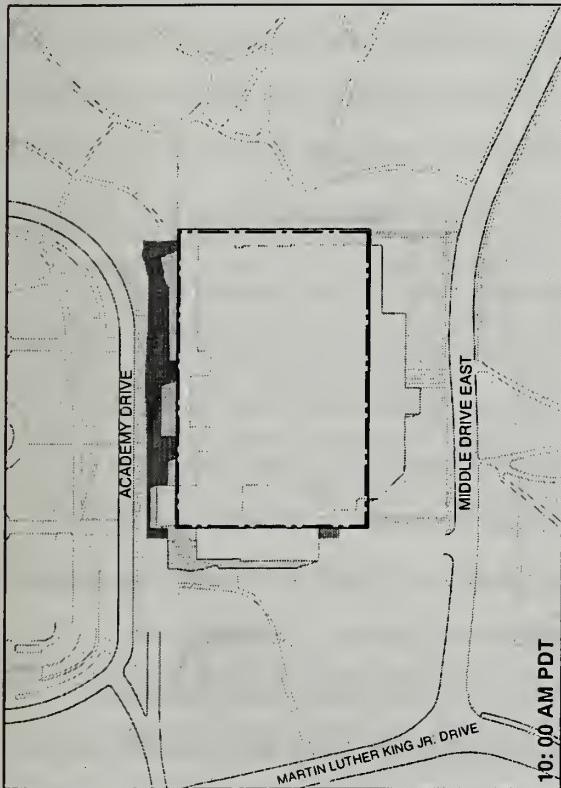
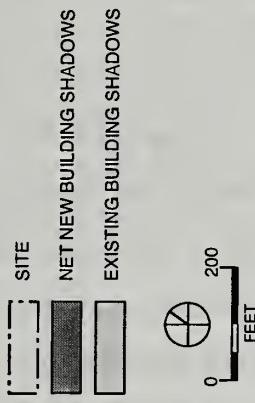


SOURCE: CADP, Inc

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 25: SHADOW PATTERNS - JUNE 21 (10 A.M., NOON, 3 P.M. PDT)



September 21



SOURCE: CADP, Inc

CALIFORNIA ACADEMY OF SCIENCES PROJECT

FIGURE 26: SHADOW PATTERNS - SEPTEMBER 21 (10 A.M., NOON, 3 P.M. PDT)

Figures 23-26 show shadow patterns for the proposed building for representative times of the day during the four seasons: during winter and summer solstices, when the sun is at its lowest and highest, and during spring and fall equinoxes, when the sun is at its midpoint. Shadow conditions from July through December mirror conditions from January through June (notwithstanding daylight saving time). The times selected for analysis include 10:00 AM, 12:00 PM, and 3:00 PM Pacific Standard Time (PST) in March and December, and Pacific Daylight Time (PDT) in June and September. The diagrams show new shade resulting from the project. In many areas around the Academy site, mature tree cover creates existing shade. While those conditions are noted below, shadow effects are discussed regardless of existing landscape or tree cover. Existing shade from trees may be one criterion to determine the significance of shadow effects. The diagrams conservatively show new shadow as a solid surface, without accounting for open screening character. The new CAS site would shift approximately 46 feet to the east, away from the Shakespeare Garden, thereby reducing project shadow effects on this Park element, when compared to shadows effects from the existing CAS structures. The Shakespeare Garden is the primary area immediately adjacent to the CAS that receives a significant amount of recreational use. Shadow effects on Shakespeare Garden are described under *June 21*, below.

December 21

At 10:00 AM Pacific Standard Time (PST) on December 21, new shadows would extend over Academy Drive directly northwest of the Academy approximately 65 feet beyond existing shadows (see Figure 23, p. III.F-4). Shadows would not extend onto the Music Concourse or any landscaping northwest of Academy Drive. New shadows would also occur along the northeast edge of the Academy and would not extend beyond the service road that abuts this side of the building. At noon in December, shadows would cover the northwestern entrance of the Academy, approximately 50 feet beyond existing shadows. Shadows would also extend northward approximately 50 feet, partially into the meadow and woods adjacent to the Academy (see Figure 23). At 3:00 PM PST on December 21, new shadow would extend approximately 75 feet beyond existing shadows into the wooded area from the northern corner

of the Academy and would extend approximately 25 feet over an area directly adjacent to the building on its northwestern side (see Figure 23).

March 21

At 10:00 AM PST on March 21, the project would add new shade to an approximate 45- to 50-foot-wide strip adjacent to the Academy's northwestern side (see Figure 23, p. III.F-5). This would include the entrance plaza area and area of proposed landscaping along the building frontage (see Figure 24). At noon on March 21, the new CAS would add new shade to a 25- to 30-foot-wide strip along the northwestern side of the building. In addition, a 15- to 20-foot-wide strip, primarily encompassing the service road along the northeast side of the building, would be shaded. At 3 PM PST, new shade would extend about 50 feet beyond existing shadows onto the service road and beyond into the wooded area on the northeastern side of the Academy.

June 21

At 10:00 AM Pacific Daylight Time (PDT) on June 21, new shadow would cover about 30-35 feet around the northwestern and the southwestern sides of the Academy, into the mixed coniferous trees at the northern edge of Shakespeare Garden (see Figure 25, p. III.F-6). Compared to existing shadows, new shadows in the Shakespeare Garden would be reduced by about 70 feet in length, which would allow for more sunlight to penetrate this part of the Park, and would be considered a beneficial effect of the proposed project. At noon on June 21, project shadows would cover a strip approximately 25 feet wide along the entirety of the northwestern side of the Academy. At 3:00 PM on June 21, the building would add new shade to a strip approximately 25 feet wide along the entirety of the northeastern side of the Academy, primarily within the service road.

September 21

At 10:00 AM PST on September 21, the project would add new shade across a strip approximately 50 feet wide directly adjacent to the Academy on its northwestern side. Shadows would not extend into Academy Drive or the Music Concourse. The project would also shade a 15 to 20 foot strip along the southwestern side of the building, into the mixed

coniferous forest in Shakespeare Garden (see Figure 26, p. III.F-7). At noon on March 21, the project would add new shade to a 30 to 35-foot-wide area directly adjacent to the Academy on its northwestern side. A small strip, approximately 15-20 feet wide from the edge of the building, would also be shaded within the service road to the northeast along the building. At 3 PM PST, new shade would extend 50 feet beyond existing shadows on the building's northeastern side and cover the service road and a strip of the wooded slope adjacent to the building.

Conclusions

Overall, the new building would add shade to new and existing landscaped areas, the entrance area, Academy Drive and the service road along the northeastern side of the building. As shown in Figure 23, p. III.F-4) the new roof overhang would shade a portion of the lawn area northeast of the Academy at 3 PM in December. Over the course of a year, the building would shade parts of this area for about one hour, from 3 PM to 4 PM in the afternoon from mid-November to late January. This does not account for existing shade at those times from tree cover adjacent to the lawn; that is, there would already be existing shade in some of those areas shaded by the project. The new roof would also add new shade to portions of the northwest entrance area and Academy Drive during most mornings and early afternoons throughout the year. Because the new CAS would be shifted away (to the east) from the Shakespeare Garden, shadow effects on the Garden would be reduced, especially during morning hours.

As noted above, no formal criteria for the significance of new shadow in Golden Gate Park have been adopted. The new Academy building, ranging from a base height of 40 feet, to 67 feet to the peaks of the rainforest and planetarium exhibits, would shade landscaped areas and entrance areas immediately adjacent to the new building itself. These project shadows would not be considered significant adverse environmental effects. Similar shadows are cast by the existing 40-foot-high building on the project site, shown in Figures 23-26. Because the peaks would be set back from the roof edge by approximately 150 feet, they would not cast new shadow on the Park. Shadows from these project elements would fall primarily on the flatter portions of the roof of the CAS.

Most new shading would occur during late fall and winter months, when shading conditions and use of the area would also be affected by rainy season conditions. The project would also shade portions of the northwest entrance area and Academy Drive during most mornings and early afternoons throughout the year. These intermittent effects would not affect use or enjoyment of these areas of the Park. The reduced shadow impacts on Shakespeare Garden would be expected to increase enjoyment of that portion of the Park. For these reasons, project shadow effects would not be considered a significant adverse environmental impact.

G. GROWTH INDUCEMENT

Growth inducement under CEQA considers how the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.¹ Included in this are projects that would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). This section summarizes the project's direct growth in employment, describes associated induced growth, and notes that the project would not remove obstacles to population growth.

The proposed project would reconstruct the CAS at the existing site. The project would demolish a total of approximately 350,000 square feet of Academy uses in 11 of 12 buildings that compose the Academy and replace those structures with one building of approximately 390,000 square feet. The project would not construct housing nor would it displace existing housing.

The proposed project would not be expected to add a significant number of employees to San Francisco's economy. The number of Academy's scientific professional, operations and educational employees is not expected to increase substantially. When the Academy reopens, it is anticipated that the number of employees would increase by approximately 20, representing an increase of approximately five percent. The number of volunteers vary, but may range from about 60 to 100 during peak periods. This amount is anticipated to be about 80 to 120 during peak periods at the new facility. It is not anticipated that any future expansion would require significant additional staffing, since the additional space would be used primarily for collections, although minimal additional volunteers might be added, bringing the total from about 120 to up to 150. Overall, the Academy may add up to approximately 70 employees at full buildout including collection expansion space. This potential increase in employment would be small in the context of total employment in San Francisco.

The CAS estimates an average annual attendance of 1,400,000 visitors to the new CAS, which would represent a net new average attendance of about 600,000 visitors to the CAS, above

existing levels. Increased attendance would not likely result in growth inducement, as attendance is projected to approach levels that existed historically, when attendance of the CAS was at its peak in 1970's.

The project would be built in a developed area within Golden Gate Park, and no expansion of municipal infrastructure not already under consideration would be required to serve the project. This infrastructure currently includes a saltwater conveyance and discharge system. The new CAS facility would not require increased capacity, and should result in decreased loads due to enhanced efficiency of the new systems.

Since the project does not have unusual labor requirements, it would be expected that project construction would meet its need for labor within the regional labor market for construction projects in San Francisco without attracting construction labor from areas beyond the region's borders.

During construction of the new CAS, about 300 Academy employees would be temporarily relocated to the transition facility at 875 Howard Street in downtown San Francisco as described in Chapter II, Project Description, pp. 16-18. Academy functions and collections would also be temporarily relocated to this transition facility. The Academy anticipates that approximately 285,000 visitors per year out of 800,000 visitors that currently attend the existing CAS would visit the transition facility. As a result of the projected temporary reduction in Academy employees and visitors, no growth inducement during the transition period is expected. Localized growth in employment and visitation would be expected at the transition facility during CAS relocation period, as this facility is currently vacant, but this increase would be temporary and within ABAG growth projections for downtown San Francisco. In addition, this projected increase in localized employment and visitation would be small in the context of total employment and visitation in San Francisco. Therefore, localized growth inducement is not considered significant.

For the foregoing reasons, the project would not result in a significant adverse impact on growth inducement.

NOTES — Growth Inducement

¹ *State CEQA Guidelines*, as amended through January 1, 2002, Section 15126(d).



IV. MITIGATION MEASURES PROPOSED TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE PROJECT

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the project. Some of these measures have been, or would be, adopted by the project sponsor and, therefore, are proposed as part of the project; some are under consideration. Implementation of some measures may be the responsibility of public agencies.

Each mitigation measure and its status is discussed below. Measures from the Initial Study (see Appendix A, p. A.1) proposed as part of the project are indicated with an asterisk (*) and follow mitigation measures of topics discussed in the EIR. Mitigation measures identified in this EIR and in the Initial Study would be required by decision makers as conditions of project approval unless they are demonstrated to be infeasible based on substantial evidence in the record.

A. TRANSPORTATION

MITIGATION MEASURES AS PART OF THE PROPOSED PROJECT

Year 2015 Cumulative Conditions

1. Under the 2015 Cumulative scenarios with and without the Underground Parking Facility, the CAS would have a significant contribution to unacceptable level of service conditions at the intersection of Fulton/Stanyan during the Saturday and Sunday midday peak hour. The Project Sponsor would work with the Department of Parking and Traffic (DPT), Recreation and Park Department, Department of Public Works, and/or the Planning Department to improve the 2015 Cumulative intersection operations to acceptable conditions.
 - **Fulton/Stanyan (Saturday and Sunday midday, With and Without and Underground Parking Facility):** Restripe the southbound approach to convert the right-turn only lane to a through-right lane, prohibit eastbound and westbound left-turns during Saturday and Sunday midday periods (similarly to what already occurs during the weekday PM peak period) and retime the signal. It should be noted that the restriping of the southbound approach would require the elimination of on-street parking along the west side of Stanyan Street to the south of the intersection. It is anticipated that left-turn prohibition would be in effect seven days of the week, between 7:00 AM and 7:00 PM. In addition, it

is anticipated that the parking restriction on Stanyan Street would be between Fulton and Fell Streets, and would be in effect seven days of the week, between 7:00 AM and 7:00 PM. With this measure, the intersection operations would improve to LOS D during the Saturday midday and Sunday midday peak hours for both future scenarios.

These proposed changes to the Fulton/Stanyan intersection might result in secondary effects to other nearby intersections. With the prohibition of left-turns from eastbound and westbound Fulton Street, left-turning traffic would need to use other north/south streets, such as Arguello Boulevard, Masonic Avenue, or local residential streets such as Parker Street. Based on the 2015 Cumulative traffic volumes, it is estimated that less than 30 vehicles would need to reroute to the eastbound and westbound directions during the Saturday midday and Sunday midday peak hours. Although the rerouted traffic may result in somewhat higher delays per vehicle at these other intersections, they are not anticipated to substantially affect those intersection operating conditions or result in increased congestion.

Intersections with Less-Than-Significant Project Contributions for which Mitigation Measures can be Developed

The following mitigation measures have been developed to improve the 2015 Cumulative intersection operations to acceptable conditions. The proposed new CAS would not be considered to have a significant contribution to cumulative conditions at these intersections. As such, the CAS would not be required to contribute to the implementation of these measures.

- **Park Presidio/Fulton (Saturday midday, Sunday midday):** Retime the intersection signal to increase the cycle length (from 85 to 90 seconds) and increase the proportion of green time provided to Park Presidio Boulevard. With this measure, the intersection operations would improve to LOS D during both the Saturday midday and Sunday midday peak hours. It should be noted that signal timing changes are not typically considered mitigation measures, as they are anticipated to occur through DPT's continuing intersection monitoring program. However, the signal at this intersection is coordinated with the other signals along Park Presidio Boulevard to ensure coordinated traffic flow in both the northbound and southbound directions. As a result, a corridor study may need to be performed along Park Presidio Boulevard to determine if the proposed signal timing changes and increase in cycle length would be possible.
- **Fulton/Arguello (Sunday midday):** Retime the intersection to increase the cycle length (from 60 to 75 seconds) and increase the proportion of the green time provided

to Fulton Street. With this measure, the intersection operations would improve to LOS D.

IMPROVEMENT MEASURES AS PART OF THE PROJECT

Construction

2. Any construction traffic occurring between 7:00 and 9:00 AM or between 3:30 and 6:00 PM on weekdays would coincide with peak commute traffic and could temporarily impede traffic and transit flow. However, since the project site is located within Golden Gate Park, the potential disruption to commute traffic would be minimal. Conversely, construction activities that may occur on weekends could affect the recreational streets adjacent to the project site. As such, construction activities on weekends should be limited, if possible.

The Project Sponsor and construction contractor(s) shall meet with the Traffic Engineering Division of the Department of Parking and Traffic (DPT), the Recreation and Park Department, the Fire Department, MUNI and the Planning Department to determine feasible traffic mitigation measures to reduce any traffic congestion, transit disruption and pedestrian circulation impacts during construction of the CAS. The temporary parking demand by construction workers would need to be met on-site or within other off-site parking facilities. The contractor would need to determine the location of an off-site parking facility for construction workers during the construction period if adequate on-street parking was not available.

Since construction of the CAS may overlap with construction of the New deYoung and the construction of the planned Underground Parking Facility, the construction contractor(s) for each project shall coordinate their construction schedules and activities to avoid conflicts. In addition, it may be possible to coordinate deliveries and hauling between the projects to minimize the number of trucks destined to and from the projects site each day. Furthermore, it may be possible to share construction worker parking locations, either off-site or within the Underground Parking Facility after its construction.

The construction contractor for each project should work with the various City departments (including the Planning Department, the Recreation and Park Department, MUNI, DPT and DPW) to develop a detailed and coordinating plan to address construction vehicle routing, traffic control, pedestrian walks and transit stop relocation.

Parking

3. Although the parking demand generated by the CAS would not be expected to result in significant environmental impacts, the following improvement measures have been

developed to reduce the parking demand associated with CAS visitors and employees and to reduce potential secondary parking effects. These improvement measures may include: (1) participating in the Commuter Check Program, or a similar program, to encourage transit use by employees, (2) contributing financially to the current Intra-Park shuttle pilot program, (3) promoting the current Intra-Park shuttle in the CAS promotional material and membership mailing, (4) supporting the establishment of congestion bypass lanes for MUNI and shuttle vehicles within the Park, (5) providing admission discounts for visitors who use the Intra-Park pilot shuttle, or, (6) provide parking validations of visitors parking in remote facilities, such as the UCSF garage.

B. HISTORIC RESOURCES

The proposed project would demolish the Steinhart Aquarium and Science Hall/Morrison Planetarium, both of which are potentially eligible for listing in the *California Register of Historic Resources*. Demolition would alter in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the *California Register of Historical Resources*. The proposed project would retain most of Simson African Hall, also potentially eligible listing in the *California Register*; however, the new overhanging and undulating roof on the exterior and the elimination of the original entry vestibule on the interior would significantly diminish the building's integrity and would cause a substantial adverse change to the eligibility of Simson African Hall. These project effects are considered potentially significant impacts to historic resources under CEQA.

MITIGATION MEASURES AS PART OF THE PROPOSED PROJECT

4. Detailed recordation of significant CAS buildings prior to their demolition would partially mitigate the loss of the three potentially historic resources. Recordation would provide important historical information that would further minimize the loss of historical resources and features. Research indicates a wealth of information including drawings and plans exist that may be documented and archived. Documentation of the existing buildings would be considered for both reconstruction and archival purposes. Recordation of the affected properties shall be in accordance with the National Park Services' guidelines for preparing a Historic American Building Survey (HABS).¹ Implementation of this mitigation measure would reduce the impact to historic resources, but not to a less-than-significant level. The loss of historically significant CAS buildings would be a significant and unavoidable impact. Significant impacts to historical resources could only be reduced to a less-than-significant level by selection of

a project alternative (see Chapter VI, Alternatives, No-Project Alternative A or Preservation Alternatives B and C).

C. VISUAL RESOURCES

IMPROVEMENTS MEASURES AS PART OF THE PROJECT

5. The project sponsor would provide as part of its subsequent project plans submittals, a detailed grading, excavation, tree protection and landscaping plan which further demonstrates, to the satisfaction of the Recreation and Park Department, that construction activities will retain the important landscape elements, including where feasible important mature trees.

D. AIR QUALITY

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

6. The project sponsor would require the contractor(s) to spray the site with water during excavation and construction activities; spray unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other material; cover trucks hauling debris, soil, sand or other such material; and sweep surrounding streets during excavation and construction at least once per day to reduce particulate emissions.

In addition to the above-mentioned measures, the following mitigation measures recommended by the BAAQMD would further reduce construction-related PM10 emissions:

- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the construction site.
- Install wind breaks at the windward sides of the construction areas
- Suspend excavation and grading activities when wind (as instantaneous gusts) exceeds 25 miles per hour.

7. Ordinance 175-91, passed by the Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities. Therefore, the project sponsor would require that the contractor(s) obtain reclaimed water from the Clean Water Program for this purpose. The project sponsor would require the project contractor(s) to maintain and operate construction equipment so as to minimize exhaust emissions of particulate and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions from equipment that would be in frequent use for much of the construction period.

E. NOISE

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

8. The project sponsor would require project construction contractor(s) to predrill holes to the maximum depth feasible on the basis of soil conditions. Contractors would be required to use construction equipment with state-of-the-art noise shielding and muffling devices. If pile driving is required, the project sponsor would also require that contractors limit pile driving activity to result in the least disturbance to neighbors, as determined by the Department of Building Inspection.

F. GEOLOGY / TOPOGRAPHY

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

9. One or more geotechnical investigations by a California-licensed geotechnical engineer are included as part of the project. The project sponsor and its contractors would follow the recommendations of the final geotechnical reports regarding any excavation and construction for the project. The project sponsor would ensure that the construction contractor conducts a pre-construction survey of existing conditions and monitors the adjacent buildings for damage during construction, if recommended by the geotechnical engineer.
10. If dewatering were necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based on this discussion, the soils report would determine whether or not a lateral movement and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey were recommended, the Department of Building Inspection would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Instruments would be used to monitor potential settlement and subsidence. If, in the

judgment of the Special Inspector, unacceptable movement were to occur during construction, groundwater recharge would be used to halt this settlement. The project sponsor would delay construction if necessary. Costs for the survey and any necessary repairs to service lines under the street would be born by the project sponsor.

If dewatering were necessary, the project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding dewatering to avoid settlement of adjacent streets, utilities, and buildings that could potentially occur as a result of dewatering.

11. The project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding installation of settlement markers around the perimeter of shoring to monitor any ground movements outside of the shoring itself. Shoring systems would be modified as necessary in the event that substantial movements are detected.

G. WATER QUALITY

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

12. If dewatering were necessary, the project sponsor would follow the recommendations of the geotechnical engineer or environmental remediation consultant, in consultation with the Bureau of Environmental Regulation and Management of the Department of Public Works, regarding treatment, if any, of pumped groundwater prior to discharge to the combined sewer system.

If dewatering were necessary, groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this were found to be necessary by the Bureau of Environmental Regulation and Management of the Department of Public Works to reduce the amount of sediment entering the combined sewer system.

13. The project sponsor would require the general contractor to install and maintain sediment traps in local storm water intakes during construction to reduce the amount of sediment entering the combined sewer system, if this were found to be necessary by the Bureau of Environmental Regulation and Management of the Department of Public Works.

H. HAZARDS/HAZARDOUS MATERIALS

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

Mitigation measures for hazardous materials identified in the Initial Study, pp. 22-25, have been updated with the following measures.

14. A Phase II Environmental Site Assessment (ESA) prepared by Iris Environmental determined there were elevated levels of arsenic within anticipated ranges in dust samples collected in the dry collections room of the CAS.² These concentration levels indicate that extra care should be taken during removal of specimens from the dry collection rooms, and in preparing these rooms for demolition. Activities to limit personnel exposure to arsenic dust would include the following:
 - Employees and/or contractors moving the specimens shall receive the minimum arsenic awareness training, protection, and monitoring duties in accordance with Cal-OSHA inorganic arsenic rules.
 - Once the specimens have been removed from the dry collection rooms, the rooms shall be thoroughly cleaned using a HEPA-type vacuum cleaner, also in accordance with Cal-OSHA inorganic arsenic rules.

No other special precautions or further remediation would be necessary during demolition of the dry collection rooms if these measures are implemented.

I. ARCHAEOLOGICAL RESOURCES

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

15. Mitigation measures for archaeological resources identified in the Initial Study, pp. 25-27, have been updated with the following measures.

Based on the reasonable potential that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology. The archeological consultant shall undertake an archeological monitoring program. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the

suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

Archeological monitoring program (AMP). The archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the AMP reasonably prior to any project-related soils disturbing activities commencing. The ERO in consultation with the project archeologist shall determine what project activities shall be archeologically monitored. In most cases, any soils disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the potential risk these activities pose to archaeological resources and to their depositional context;
- The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archaeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with the archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction crews and heavy equipment until the deposit is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation with the ERO. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, present the findings of this assessment to the ERO.

If the ERO in consultation with the archeological consultant determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either:

- A. The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- B. An archeological data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

If an archeological data recovery program is required by the ERO, the archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The project archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP. The archeological consultant shall prepare a draft ADRP that shall be submitted to the ERO for review and approval. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations.
- *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures.
- *Discard and Deaccession Policy.* Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program.* Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures.* Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report.* Description of proposed report format and distribution of results.

- *Curation.* Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains, Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects.

Final Archeological Resources Report. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the draft final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Major Environmental Analysis division of the Planning Department shall receive three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

NOTES — Mitigation Measures

- ¹ National Park Service, *Historic American Building Survey, Guidelines for Preparing Written Historical and Descriptive Data*, March, 2002. This document is available for public review by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.
- ² Iris Environmental, *Phase II Environmental Site Assessment, California Academy of Sciences, San Francisco, California*, Iris Job No. 02-222-B, prepared for the California Academy of Sciences, October 18, 2002.

V. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

In accordance with Sections 21100 (b)(2)(A) and 21100.1(a) of the California Environmental Quality Act (CEQA), and Section 15126.2(b) of the State CEQA Guidelines, the purpose of this chapter is to identify significant impacts that could not be eliminated or reduced to an insignificant level by implementing mitigation measures included as part of the project or by other mitigation measures that could be implemented, identified in Chapter IV, Mitigation Measures. This chapter is subject to final determination by the San Francisco Planning Commission as part of the certification process for the EIR. If necessary, this chapter will be revised in the Final EIR to reflect the findings of the Planning Commission.

As discussed in Chapter III, Environmental Setting and Impacts, and Chapter IV, Mitigation Measures, implementation of the proposed project would result in a significant environmental effect on historic resources that could only be eliminated by selection of an alternative project design. If selection of an alternative design is determined to be infeasible, possible mitigation measures would include recordation of the historic resources prior to their demolition. Implementation of this measure would reduce impacts to historic resources, but not to a less-than-significant level. As such, demolition of historic resources would be a significant and unavoidable impact.

Year 2015 cumulative conditions at the following intersections would operate at LOS E or F, a significant adverse cumulative effect: Fulton/Stanyon, Fulton/Arguello, Park Presidio/Fulton, King/Crossover, and Lincoln/Nineteenth. The proposed CAS Project would only contribute significantly to 2015 cumulative conditions at the Fulton/Stanyan intersection, which can be mitigated to a less-than-significant level. While the project would not contribute significantly to cumulative conditions at the remaining intersections, only the Park Presidio/Fulton and Fulton/Arguello intersections could be mitigated to less-than-significant levels. No mitigation measures are available to avoid or reduce significant 2015 cumulative conditions to the remaining intersections of King/Crossover and Lincoln/Nineteenth.

VI. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the proposed project and discusses environmental impacts associated with these alternatives. The project decision-makers could approve an alternative project instead of the proposed project, if that alternative would reduce or eliminate significant impacts, and would feasibly attain the project objectives. The determination of feasibility will be made by project decision-makers on the basis of substantial evidence in the record, which shall include, but not be limited to, information presented in the EIR and in comments received on the Draft EIR.

As discussed in Chapter IV, the EIR identifies a significant environmental effect on historical resources that could only be substantially reduced or eliminated by selection of an alternative project design. Therefore, the following alternatives are evaluated in this chapter: a No-Project Alternative and two Reuse/Preservation Alternatives; one retaining all historically significant buildings with a reduced program of new uses within the existing maximum height and footprint, and one retaining all historically significant buildings while maintaining all proposed program uses within the existing footprint, but allowing two additional stories above the existing height of the facility. Finally, alternatives considered but rejected, including alternative sites, are discussed in this chapter. A description and evaluation of these alternatives are presented below.

A. ALTERNATIVE A: NO PROJECT

DESCRIPTION

The No-Project Alternative would entail no change to the site. The proposed new CAS would not be built; all existing buildings, including the potentially historic Steinhart Aquarium, Morrison Planetarium, and Simson African Hall, would remain on the site. No significant alterations to the interior or exterior spaces would occur, except as might be required for life safety compliance, such as seismic upgrades including additional bracing, foundation improvements, and revised column spacing. The overall space at the site would remain at about 350,000 sq. ft., compared to about 390,000 sq. ft. of total space with the proposed project. Attendance would remain at current levels or, more likely, continue the current trend

of decline of recent years. Existing documented deficient structural, utilities, climate-control, seismic, security and conditions would remain; however, life safety upgrades would be made as necessary for continuing occupancy of the CAS. In turn, life safety upgrades would likely trigger other code upgrades, such as accessibility requirements, including ADA-accessible ramps and elevators.

IMPACTS

If the project did not proceed, the impacts associated with the proposed project would not occur. The environmental characteristics of this alternative would be generally as described in the Setting sections of this EIR (see Chapter III, Setting, Impacts, and Mitigation Measures for a discussion of existing conditions). This Alternative has been identified as the Environmentally Superior Alternative, as it would not result in significant impacts to historic resources, and would reduce non-significant impacts of the project related to increased trip generation. However, this Alternative would not incorporate life safety, seismic and sustainability improvements proposed as part of the project.

LAND USE

No impacts to land use were identified as part of the proposed project. Given continued use of the project site as a museum in the same size and program, the No Project Alternative would also have no impacts to land use.

TRANSPORTATION AND CIRCULATION

Various intersections in the area, such as Fulton/Stanyon, Fulton/Arguello, Park Presidio/Fulton, King/Crossover, and Lincoln/Nineteenth would continue to operate at unacceptable levels with or without the proposed project under the cumulative scenario. Under the No Project Alternative, attendance levels would be expected to decline in the future, as exhibits remain static, new competing attractions are developed elsewhere in the Bay Area, and fewer people are drawn to the Academy. This may result in trip reductions compared to the proposed project, however significant cumulative traffic impacts to area intersections would likely remain.

HISTORIC RESOURCES

Significant impacts to historic resources, including the loss of or alteration to resources potentially eligible for the *California Register*, such as Simson African Hall, Steinhart Aquarium, and Science Hall/Morrison Planetarium, would be avoided under the No Project Alternative, as these structures would remain in place. However, eligible historic buildings such as the Steinhart Aquarium would continue to deteriorate which could affect their eligibility status. Existing alterations that adversely impact the resources, such as Cowell Hall, would remain. In addition, maintenance of the Steinhart building would include extensive retrofit, including replacement of substantially all of the existing structure. This would be considered a significant impact to historic resources.

VISUAL RESOURCES

No impacts to visual resources were identified as part of the proposed project. Given the similar relatively similar massing and volume as the proposed project, the No Project Alternative would also have no impacts to visual resources. Under the No Project Alternative, the Academy would appear exactly the same as under existing conditions, except for modifications required for code compliance, and would maintain the existing landscape elements surrounding the building.

AIR QUALITY

Although not considered significant, construction-related air emissions associated with the proposed project would be eliminated under the No Project Alternative, as no major construction efforts would occur. Given similar reduced attendance levels, project-related air emissions from vehicular trips would be similarly reduced compared to current levels under this alternative.

SHADOWS

Although not considered significant, any new or different shadow configurations created by the proposed project would not occur with the No Project Alternative. Existing shadows effects on the Park would remain in their current configuration under the No Project

Alternative. This alternative would eliminate the reduction in shadow on certain areas of the Park associated with the proposed project, especially near the Shakespeare Garden given the reduced footprint at the new CAS.

COMPARISON WITH PROJECT OBJECTIVES

The No-Project Alternative would partially address some of the Project Objectives listed on pp. 2-3 and would not meet others. For example, the No Project Alternative assumes some upgrades as required for life safety, and the existing access patterns to the facility and the building footprint would be maintained. Portions of the facility (such as the Steinhart Aquarium) would continue to be non-Code compliant, buildings and infrastructure would generally remain in their existing configuration and condition (beyond life safety upgrades), sustainability features and increased areas of transparency and landscaping would not be included, and significant reworking and upgrades of research, collections and administration space and exhibits would not occur. Decision makers would evaluate consistency of the proposed project and its alternatives with Project Objectives as part of the project review process.

B. PRESERVATION ALTERNATIVE B: FULL ACADEMY PROGRAM/INCREASED BUILDING HEIGHT

DESCRIPTION

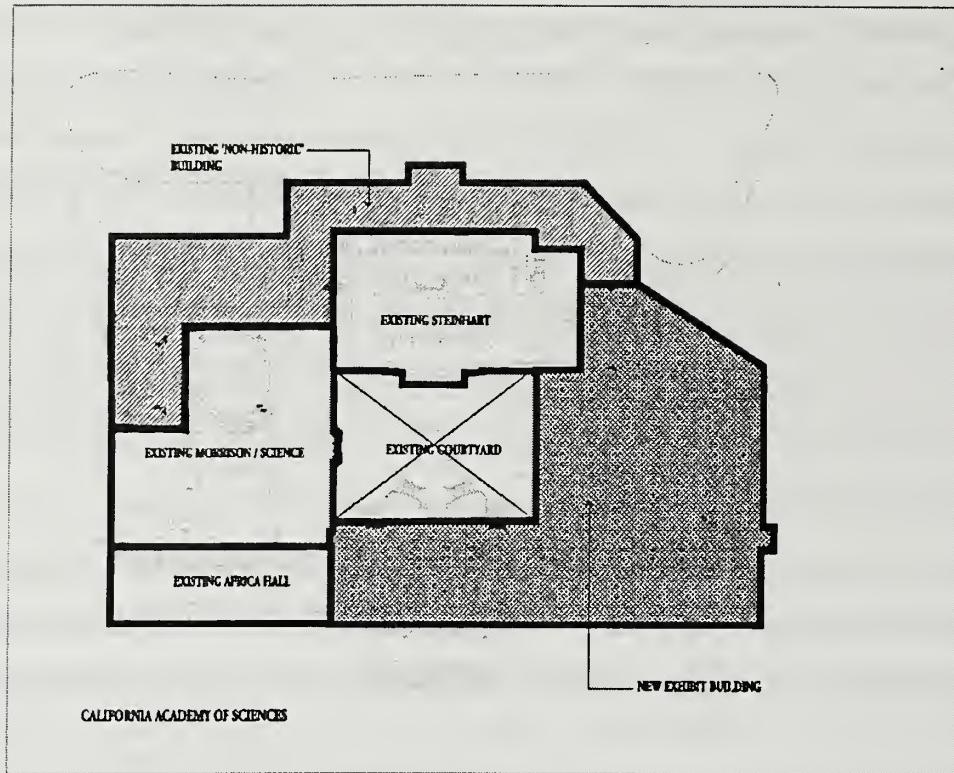
Preservation Alternative B would develop a new CAS building that would maintain and restore Simson African Hall, Steinhart Aquarium, and Science Hall/Morrison Planetarium. The remaining nine buildings associated with the CAS would be demolished. This alternative would preserve as many character defining features of the potentially historic buildings as possible, including significant facades, features, and spaces. The entry vestibule, exhibit bays, and original circulation pattern would be retained within Simson African Hall. Important elevations, exhibit halls, and the Swamp exhibit would be preserved within Steinhart Aquarium. The open courtyard centered on the Steinhart Aquarium (Fountain Court), would be maintained. As a practical matter, this approach would require retaining substantially all of the three buildings. Most of the full proposed program could be accommodated in the existing

building footprint while reusing and maintaining the three potentially historic structures. However, it would be necessary to construct a new 50-ft.-high, 175,000 gsf, new RC&A structure. This base RC&A structure would be five floors in height. To accommodate the full proposed program, including the 80,000 gsf collection expansion space, it would be necessary to add approximately two more floors above the new RC&A building, bringing the total height of this L-shaped building to 75 feet, approximately 40 feet above existing roof heights. The project program calls for the collections growth space to be located below grade adjacent to Middle Drive East. This option would no longer be possible under Alternative B, as most of the expansion footprint would be taken up with a combination of the existing Steinhart Aquarium and the new RC&A building.

Alternative B would also include new high-bay exhibition space in another L-shaped structure to the west of the historically significant buildings, enclosing the courtyard, and within existing building heights of approximately 40 feet (see Figure 27, on the following page).

This alternative would include a program of structural and seismic rehabilitation of the historic buildings, preserving those resources which were damaged during the Loma Prieta Earthquake, or that have other structural, life/safety, or code deficiencies. Those upgrades could also trigger other code compliance requirements related, for example, additional structural supports or accessibility issues that would require further reductions in program space. This analysis does not assume any such reductions. Historic materials beyond repair would be replaced with similar, in-kind materials, in accordance with the Secretary of the Interior's Standards. Historic materials and features lost to later additions or renovations would not be mimicked to avoid false representations of historic materials.

Historic uses would be maintained within those buildings potentially eligible for the *California Register*. The Steinhart Aquarium and Science Hall/Morrison Planetarium would continue in substantially the same use. Simson African Hall would continue to serve primarily an exhibit function.



Source: GHCP

Figure 27. Preservation Alternative B: Basic Site Plan

The new exhibit space would house exhibits and other proposed public functions of the project such as retail, lobby and visitor services. This Alternative would alter the current North American Hall massing to accommodate the required program. As discussed previously, this alternative would also include a new, L-shaped RC&A building south of Science Hall/Morrison Planetarium and Steinhart Aquarium in the approximate location of the existing Wattis Hall (see Figure 27).

The base RC&A building would be approximately four floors above-grade over a single basement floor totaling about 175,000 gsf, for a total height of approximately 50 feet. With collection expansion space, it would be at least six floors (over a single basement floor), about 245,000 gsf in area with a total height of approximately 75 feet, or 40 feet higher than Simson African Hall or North American Hall. The new RC&A building would also be about 20 feet taller than the existing Wattis Hall, with about three times the footprint of that building. It is assumed that new uses would be clearly differentiated from the old and will be compatible

with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and environment, in keeping with the Secretary of the Interior's Standards No 9, new uses.

Because Alternative B would have a similar footprint as the existing building (approximately 240,000 sq. ft.), compared to the reduced footprint of approximately 205,000 sq. ft. proposed as part of the project, consequently, the associated increase in parkland would not occur.

Alternative B would not include the undulating and landscaped roof with overhanging trellises and perimeter columns.

IMPACTS

LAND USE

No impacts to land use were identified as part of the proposed project. Given the similar nature of the program and use of the project site, Alternative B would also have no impacts to land use.

TRANSPORTATION AND CIRCULATION

Impacts to transportation and circulation under Alternative B would be similar to the proposed project, because the overall size of the program would be maintained, and would likely generate similar numbers of vehicular trips. As no significant traffic impacts under Baseline Plus Project were identified with the proposed project, Alternative B would also have no significant impacts under this scenario. However, because this Alternative would not include proposed exhibits included in the project such as the rainforest, a renewed planetarium and aquarium, and the proposed rooftop feature, attendance would be expected to be lower than with the proposed project. As a result, vehicular trips may be reduced somewhat when compared to the proposed project, but still likely higher than current attendance levels.

Similar to the proposed project, Alternative B would also have a significant contribution to unacceptable level of service conditions at the Fulton/Stanyan intersection during the Saturday and Sunday midday peak hour under the 2015 Cumulative with Underground Parking Facility Scenario. Even with a potential reduction in attendance, this intersection, as well as others in

the area, would continue to operate at unacceptable levels under the cumulative scenario. Mitigation measures described in Chapter IV, Mitigation Measures, would be implemented to reduce the cumulative traffic-related impacts under Alternative B. As with the proposed project, the significant cumulative traffic impact at the Fulton/Stanyan intersection could be reduced to a less-than-significant level with implementation of identified mitigation measures.

HISTORIC RESOURCES

Impacts to potentially historic resources, including Simson African Hall, Steinhart Aquarium, and Science Hall/Morrison Planetarium are expected to be reduced to a less-than-significant level with implementation of Preservation Alternative B. This alternative would attempt to preserve and maintain most character defining features of these buildings, while incorporating new uses and materials that are clearly differentiated from the old, in keeping with the Secretary of the Interior's Standards. Buildings ineligible for the *California Register*, and which have visually altered the setting of the historic buildings would be removed, such as Cowell Hall, Wattis Hall, and other later additions. Historic building facades visible from adjacent historic resources, such as from the Music Concourse, would be maintained, and would generally appear as they did historically. However, some modification of North American Hall's massing would be necessary to accommodate the exhibit area program. The increase in height (about 40 feet higher than Simson African/North American Halls and 20 feet higher than the tallest existing building), would be visible from portions of the Music Concourse, but would not substantially affect the historic setting of the Concourse resource such that it would no longer qualify for listing in the *California Register*. Because the additional building volume would be located towards the southern portion of the building, approximately 200 feet south from the Academy's front façade, the additional height would be visible primarily further away from the building, such as from the north side of the Music Concourse near Tea Garden Drive and the New deYoung Museum.

Selection of this design alternative, which would maintain the potentially historic resources while constructing compatible new uses, would avoid significant impacts to historic resources. This Alternative project design would not take into account technical reports, including preliminary engineering reports, which suggest that some of the existing CAS buildings are

structurally inadequate and preservation as called for by the *Secretary's of the Interviewer's Standards* might not be a viable option.¹

VISUAL RESOURCES

As explained above, the proposed additional height of 40 feet toward the rear (southern) façade for the new RC&A wing would be located approximately 200 feet from the northern façade, and would be visible above the existing roofline farther to the north from the Academy, near the New deYoung Museum. This increase in height would not significantly block public views from the Park, such as Mt. Sutro or Sutro Tower. Some tree tops within the Park, such as those along Middle Drive East, may be obscured from view from these distant locations, but this effect would not be considered a significant visual impact.

Views from Middle Drive East looking northwest would change, with a new RC&A wing approximately 20 feet taller than the existing Wattis Hall, a total of 75 feet in height, and about three times the footprint area. The building would appear larger as a result, but no significant views would be blocked from this location. Architecturally, this alternative has not been fully designed, but is assumed to be rendered in an all-glass curtain wall, similar to the proposed project, and would appear darker when compared to the light-colored concrete façade of Wattis Hall. Some of the existing landscape elements along Middle Drive East, such as the large eucalyptus tree, would likely remain in this location. Similarly, the service drive access from Middle Drive East would likely remain in its existing location.

Although not considered a significant visual impact, Alternative B would maintain the footprint of the existing facility (approximately 240,000 sq. ft), thereby eliminating the approximate 36,000 sq. ft. gain in parkland associated with the proposed project.

AIR QUALITY

Alternative B would have similar project-generated and construction-related air quality impacts as the proposed project, given the similar nature and size as the proposed project. As no significant air quality impacts were identified with the proposed project, Alternative B would also have no significant air quality impacts. Although considered less-than-significant, construction-related emissions could be further reduced by implementing the statutory

regulations for dust suppression and other as described in Mitigation Measure 2, in Chapter IV, Mitigation Measures. If this alternative were pursued, the construction period may be extended due to the seismic upgrade and code compliance requirements as part of preserving historically significant but deteriorating buildings.

SHADOWS

Shadow effects of Alternative B would be greater than the proposed project, given the larger footprint. The additional stories toward the rear of the Academy would cast additional shadow to the southeast of the facility in the late afternoon than either the existing CAS or the proposed project, but would not be considered a substantial new amount of shade that would preclude continued use or enjoyment of the Park.

COMPARISON WITH PROJECT OBJECTIVES

Alternative B would partially address some of the Project Objectives listed on pp. 2-3 and would not meet others. For example, if the collections growth space were included, Alternative B would meet the program requirements and incorporate life safety and other Code upgrades. New construction would provide some opportunity for improving the functionality and sustainability of certain portions of the Academy. It would maintain substantially the same footprint, with some increase in height and bulk. Because it would maintain substantial portions of the existing Academy, the opportunities for improving the functionality and sustainability of spaces would be more limited, and the remaining available footprint would be less efficient than under the proposed project. A single, unified two-level basement with life-support functions could not occur under this Alternative, nor would the new landscaped roof which would provide many of the sustainability elements. The research functions would remain separated from the exhibit space. Decision makers would evaluate consistency of the proposed project and its alternatives with Project Objectives as part of the project review process.

C. PRESERVATION ALTERNATIVE C: REDUCED DEVELOPMENT PROGRAM/HEIGHTS MAINTAINED

DESCRIPTION

This Alternative would be similar to Alternative B, in terms of preservation of the three potentially historic buildings, but would maintain the existing building heights of approximately 40 feet. This would result in a reduction (approximately 40,000 gsf) in the base RC&A building (approximately 10 percent of the proposed program, or about one-quarter of the total RC&A space), plus the proposed 80,000 gsf collection expansion space, for a total reduction of about 120,000 gsf, about one-quarter of the total CAS program. The undulating landscaped roof with overhanging trellises and perimeter columns would also be eliminated. As with Alternative B, code compliance requirements could result in additional reductions in program space that are not analyzed here.

IMPACTS

LAND USE

No impacts to land use were identified as part of the proposed project. Given the similar nature of the program and use of the project site, Alternative C would also have no impacts to land use.

TRANSPORTATION AND CIRCULATION

A reduction in building size of approximately 25 percent (10 percent base RC&A, plus collection expansion space) compared to the proposed project would likely reduce vehicular trips by a similar amount under Alternative B. As no significant traffic impacts under existing-plus-project were identified with the proposed project, Alternative C would also have no significant impacts under this scenario. Even with a 10 percent reduction in size of base program, the 2015 Cumulative with Underground Parking Facility traffic impact at the Fulton/Stanyan intersection would continue to be significant, as with the proposed project. Mitigation measures described in Chapter IV, as part of the proposed project, would be implemented to reduce the cumulative traffic-related impacts under Alternative C. As with the

proposed project, the significant cumulative traffic impact at this intersection could be reduced to a less-than-significant level with implementation of identified mitigation measures.

HISTORIC RESOURCES

As with Alternative B, this alternative would also reduce the potential impacts to historic resources associated with the proposed project to a less-than-significant level. This alternative would appear slightly more visually compatible with the historic setting of the existing Academy buildings and adjacent historic resources such as the Music Concourse than Alternative B, due to a height that is similar to the proposed building, and would not project approximately 40 feet above the existing roofline.

VISUAL RESOURCES

No significant impacts to visual resources were identified as part of the proposed project. Given the similar relatively massing and volume of the proposed project, Alternative C would also not be expected to have impacts to visual resources. Because the increase in height of approximately 40 feet would be eliminated under Alternative C, this alternative would be more visually similar with the proposed project than Alternative B, given similar overall roof heights.

AIR QUALITY

Alternative C would have similar project-generated and construction-related air quality impacts as the proposed project, given the similar nature and size as the proposed project. As no significant air quality impacts were identified with the proposed project, Alternative C would also have no significant air quality impacts. Although considered less-than-significant, Alternative C would also have construction-related emissions that could be reduced by implementing the statutory regulations for dust suppression and other as described in Mitigation Measure 2, in Chapter IV, Mitigation Measures. Similar to Alternative B, if this alternative were pursued, the construction period may be extended due to the seismic upgrade and code compliance requirements as part of preserving historically significant but deteriorating buildings.

SHADOWS

Shadows created by Alternative C would be similar to shadow effects from the existing CAS, given the similar height and massing of the alternative, but would be greater than the proposed project, given the reduced footprint associated with the new CAS.

COMPARISON WITH PROJECT OBJECTIVES

Similar to Alternative B, alternative c would partially address some of the project objectives listed on pp. 2-3 and would not meet others. The analysis is similar to as described above for Alternative B. In addition, it would reduce program space and therefore would eliminate some research functions and would not accommodate collections growth space. Decision makers would evaluate consistency of the proposed project and its alternatives with project objectives as part of the project review process.

ALTERNATIVES CONSIDERED AND REJECTED

No alternative sites have been identified within San Francisco where the project could be constructed feasibly and consistent with the project sponsor's objectives. The Academy has a long history in Golden Gate Park, with the first structure (North American Hall) opening to the public in 1916. The San Francisco Charter provides that the CAS be located on public property without land cost to the Academy. Moreover, the Academy's location and role in Golden Gate Park is recognized under various City Codes, documents and plans, including the San Francisco General Plan and Golden Gate Park Master Plan. The presence of the cultural institutions is a contributing element to the Park's and its proposed historic status. Finally, the Academy requires a setting that is conducive to creating interest in, and providing opportunities for interacting with the natural world, which the Park provides.

As part of the new Academy project, the Academy studied a number of options, including alternative locations outside of Golden Gate Park. Specifically, the Academy considered relocating the Aquarium, Planetarium and Natural History galleries downtown in a new public museum, with the research component and associated facilities remaining in the Park. This division was established due to the prohibitively high cost of building new square footage downtown. The off-site location was ultimately rejected due to its high cost, undesirable

separation of research functions, redundancy of certain facilities, public support for the current location, and inconsistency with many of the project sponsor's objectives identified in Chapter II, Project Description.

Other variants for Alternative B were considered in lieu of increased building height, but were not further analyzed due to increased conflicts with project objectives and other feasibility issues as compared to the increased height approach. The first would be to locate collections growth off-site. This is inconsistent with the Academy's program, which calls for locating collections space on-site. As discussed further below, the Academy has analyzed this option extensively in the past but has rejected it due to the role the collections play in the research and public education function. The nature of the Academy's scientific research is such that the scientists access collections on a daily basis. In addition, one of the core objectives of the new facility is to create increased public awareness of science through direct access to collections. Finally, collections curator and other functions are highly specialized and there would be substantial redundancy in staffing. Even without that space, it would still be necessary to construct a major new structure behind Morrison/Science Hall (four floors over a basement, or a total of 175,000 gsf,) reaching at least 50 feet high. Although elements of the current facility and proposed project would reach peaks of 50 feet and above, the predominant height is less than 40 feet, with the massing broken up by variation in height and bulk. Therefore, even without the growth space, any Preservation Alternative that retained the proposed program would necessitate increased height and bulk and therefore would be substantially similar to Alternative B in its impacts.

Another approach would be to remove or relocate the collections growth space, and replace some portion of the 50-foot-high new RC&A structure, proposed under Alternative B, with underground space adjacent to Middle Drive East, where the below-grade collections growth space is currently proposed for the project. Because the Steinhart and its substructure would remain in place, the area available for below-grade construction adjacent to Middle Drive East would be substantially reduced from about 80,000 to about 40,000 sq.ft. and it would be reconfigured as an about 40-foot-wide, less functional space. Because of its configuration and below-grade character, it would have limited value as exhibit and administration space, and could not be used to house the CAS wet collections due to Code requirements related to

hazardous materials. For these reasons, Alternative B was selected for analysis and these variants were not pursued further.

NOTES — Alternatives

- ¹ According to a review of technical feasibility of the preservation alternative from project architects Gordon H. Chong and Partners, it would not be possible to maintain the Steinhart Aquarium in place given the extent of deterioration (Gordon H. Chong and Partners, *California Academy of Sciences; Review of Potential Preservation Alternatives*, December 2, 2002, available for review by appointment with the San Francisco Planning Department, 1660 Mission Street). All but a small portion of the entrance area would require full demolition and reconstruction. Essentially, the structure would be taken apart in pieces and reconstructed using largely new materials. As such, according to the report, the value of this approach as a preservation activity would be questionable.

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A. INTRODUCTION

ORGANIZATION OF COMMENTS AND RESPONSES

This document contains the public comments received on the Draft Environmental Impact Report (EIR) prepared for the California Academy of Sciences Project, and responses to those comments.

All substantive comments made at the Draft EIR public hearing before the Planning Commission on April 24, 2003, and all written comments received during the Draft EIR public review period from March 15, 2003, to April 29, 2003, are presented herein by direct quotation, edited to delete repetition and non-substantive materials only. In some instances, minor edits have been made to the public hearing transcript; changes other than editorial corrections are noted.

Comments and responses are grouped by subject matter and are generally arranged by topic corresponding to the Table of Contents in the Draft EIR. Each group of comments is followed by its set of responses. Responses generally provide clarification of the Draft EIR. They occasionally include changes in, or additions to, the text of the Draft EIR. These modifications are indented and bolded within the response to make them easily discernible. Newly inserted words and phrases are double underlined, as are new sentences that are incorporated into existing text. Underlining is not used if the modification is all new text. Text that is deleted is denoted with ~~strike through~~. As the subject matter of one topic may overlap that of other topics, the reader must occasionally refer to more than one group of comments and responses to review all information on a given subject. Where this occurs, cross references are provided.

Some comments do not pertain to physical environmental issues, but responses are included for informational purposes.

The public hearing transcript, a copy of all letters received during the public review period, the administrative record, and background documentation for this EIR are contained in Case File 2002.0782E, available for public review at the Planning Department, 1660 Mission Street, San Francisco.

B. LIST OF COMMENTORS

The following individuals submitted written comments during the public comment period of March 15, 2003, through April 29, 2003, and/or provided oral testimony at the public hearing on April 24, 2003, on the California Academy of Sciences Project DEIR.

Michael J. Antonini, Vice President, San Francisco Planning Commission (public hearing comments, April 24, 2003)

Shelley Bradford Bell, President, San Francisco Planning Commission (public hearing comments, April 24, 2003)

Roger Branden (public hearing comments, April 24, 2003)

Alyce G. Brown, FDR Democratic Club (public hearing comments, April 24, 2003)

Jim Chappell, President, San Francisco Planning and Urban Research Association (public hearing comments, April 24, 2003)

Jennifer Clary, President, San Francisco Tomorrow (written comments, April 29, 2003)

Christopher Duderstadt, Alliance for Golden Gate Park and San Francisco Tomorrow (public hearing comments, April 24, 2003)

Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department, (written comments, April 24, 2003)

Michael Levin (written comments, April 28, 2003)

August Longo, President, FDR Democratic Club (public hearing comments, April 24, 2003)

Maggie Lynch, CAS Community Advisory Group and Muni (public hearing comments, April 24, 2003)

Mary Anne Miller, Alliance for Golden Gate Park (public hearing comments, April 24, 2003)

Mary Anne Miller and Chris Duderstadt, Board of Directors of the Alliance for Golden Gate Park (written comments, April 28, 2003)

Ron Miguel, President, Planning Association for the Richmond (public hearing comments, April 24, 2003)

Mark Palmer, Green Building Coordinator, San Francisco Department of the Environment (public hearing comments, April 24, 2003)

IX. Comments and Responses
B. List of Commentors

Katherine Roberts, Alliance for Golden Gate Park and San Francisco Green Party (public hearing comments, April 24, 2003)

Timothy Sable, District Branch Chief, California Department of Transportation (written comments, April 28, 2003)

Leah Shahum, Executive Director, San Francisco Bicycle Coalition (written comments, April 29, 2003)

Howard Strassner, Chair Transportation Committee, Sierra Club San Francisco Group (written comments, April 23, 2003)

Steve Willis, Save the Music Concourse (written comments, April 29, 2003)

C. COMMENTS AND RESPONSES

GENERAL COMMENTS ON THE DEIR

I am President of the Planning Association for the Richmond, which is a direct neighbor of the Academy. I also happen to serve on the Academy's Citizens Advisory Group, and am intimately familiar with how it's going to reflect in Golden Gate Park as I served on the Concourse board. So I have a little background on this one. Rather than speaking on the merits of the architecture in the Academy itself, and just to direct my comments to the EIR in particular, I have actually read it. I think I have actually understood it. I have been to a number of sessions at the Academy which has explained many sections of it including the environmentally fantastic building program, which will probably be the finest in this area if not in the United States when it's completed. I find the EIR to be totally adequate. I think it does an excellent job. I know there have been questions regarding traffic flow, and I think that's endemic of San Francisco on any EIR. And I believe that you will have enthusiastic response when this comes before you in the future. (*Ron Miguel, President, Planning Association for the Richmond*)

The new California Academy of Sciences is clearly a dream project, and this is exemplified in the DEIR. The DEIR is clearly adequate, accurate and complete, and it's short. There are no unmitigated negative environmental impacts. Some people, they say that this project should have been consolidated in an EIR with other projects in the Park. That is not correct. This was conclusively settled by the City Attorney several years ago when the deYoung was up. They're projects by different agencies with different financing on different time tables. The Concourse Authority is in fact fulfilling that role. The Academy has followed a model process. As a member of the CAC, I can testify that the Academy has met extensively with the neighbors and extensively with the community. They have asked, they have heard and they have listened and responded.

This building will make a very positive contribution to primary science, to public education, and certainly to architecture and urban design of the city, and will be a worldwide demonstration of responsible ecological design. SPUR very heartily supports this project. (*Jim Chappell, President, San Francisco Planning and Urban Research Association*)

The Recreation and Park Department has reviewed the public Draft Environmental Impact Report for the California Academy of Sciences project. We have been working closely with the Academy to provide input and advice in preparation of their document. We have found the Academy extremely responsive to the issues and concerns that the Department has raised regarding the project.

We would however like to comment on a number of matters raised in the DEIR that we feel need to be more thoroughly investigated. These matters include but are not limited to pedestrian, visual, and construction impacts. Specific comments are listed below. We have a high level of confidence that the issues that we raise regarding the DEIR will be addressed

satisfactorily in the Final EIR. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

Comments noted. The comments above address the adequacy, accuracy, and completeness of the DEIR in general. The general comments above do not include specific questions on the DEIR content itself. This Comments and Responses document does clarify, amplify, or make other insignificant modifications to the DEIR in response to specific comments, as provided herein.

PROJECT DESCRIPTION

Green Building Program

We are otherwise pleased that the Project will include many sustainable design features even though at this time, sustainable design features are not considered to be an environmental impact. (*Howard Strassner, Chair, Transportation Committee, Sierra Club San Francisco Group*)

As you know, the Environmental Impact Report is intended to describe and disclose any possible negative environmental impacts to a project, and the Green Building Program within San Francisco's Department of the Environment is, on the other side of the coin, to create buildings that have positive environmental impacts. And while there is some description in the EIR of the Green Building aspects, the new Academy of Sciences was designated as one of the ten Green Building pilot projects as part of the RD Ordinance of 1999, and this information should be disclosed as a part of the record in an EIR.

This project is described in the 1999, 2002 Green Building report, which I'd like to submit as being part of the record to the Planning Commission. And through these ten pilot projects, and especially the new academy, city design professionals, consulting firms and departmental project teams have gained much experience about the process of creating environmental and sustainable city buildings and an unprecedented opportunity to learn the implementation skills required to create successful and cost effective Green Buildings. The academy has led the way in assembling the multidisciplinary design teams and directing the collaborative design process to set realistic environmental goals, solve cross-discipline problems early in the process, and create best possible building.

This historic facility is a natural history museum, aquarium and planetarium as well as a working scientific research laboratory. The new academy will be a physical embodiment of the Academy's mission to understand and protect the natural world. A model of environmental responsibility, the building will serve as an extension of the exhibition program and highlight the Green Building features for the public.

The design team is developing many innovative Green Building systems including utilizing and actually reducing the existing building footprint to minimize impacts in Golden Gate Park. Additionally, natural ventilation and daylighting, efficient water and energy use and renewable energy are natural candidates for exhibiting environmental awareness, as are natural, durable and nontoxic materials choices. A curvilinear living roof will visually and physically integrate the museum into the natural setting of Golden Gate Park, at the same time reducing storm water run-off, adding insulating -- ...And I highly support the creation of the new Academy of Sciences at Golden Gate Park. (*Mark Palmer, San Francisco Department of the Environment*)

I just want to say for the document that the issue of the Green Building pilot program, I hope that it is acknowledged more in the document as stated by Mr. Mark Palmer. It is a key pilot program for the Department of the Environment, and I think that the Green Building aspects as he outlined them should be included in the EIR. (*Shelley Bradford-Bell, President, San Francisco Planning Commission*)

Response

Chapter I, Summary DEIR p. S-2 and Chapter II, Project Description, DEIR p. 5, second paragraph, notes the Academy project's sustainability features:

The facility has been designed to a high level of sustainability. The most recognizable "green" feature would be the planted roof, which would provide insulation (thereby reducing energy use), slow runoff, return runoff to the aquifer, significantly lessen the "urban heat island effect," or tendency for large, paved surfaces to generate and reflect heat into the environment. It would also incorporate renewable building materials including glazed, transparent façades, roof sections and lighting controls designed to maximize use of natural daylight; provide solar controls, incorporated primarily in the roof, overhang and associated shading devices; feature a natural ventilation system, implemented largely through the roof design, operable windows and the configuration of the exhibit area; and would include reclaimed water and stormwater recharge systems. The facility is part of the City's sustainability program.

In addition, Chapter II, DEIR p. 23, footnote 1, describes the sustainability program.

Page S-2 is revised to add the following sentence at the end of the last paragraph:

The facility is also a pilot program of the Sustainability Program for the City of San Francisco.

Collections Growth Area

Comments

THE "FUTURE EXTENSION" SHOULD NOT BE COVERED BY THIS EIR - Apparently, the Academy wishes to have carte blanche to construct a "Future Extension" comprising all of the setback space from the current proposed project to Middle Drive. There are no plans for

this future extension and therefore nothing which can be studied at this time in this document. If this area were developed, the removal of about 50 mature trees would be required. We strongly suggest that this additional project be combined with this current project and covered in this EIR since nothing has been presented for environmental study.

This private institution that wishes to expand in Golden Gate Park, to extend its footprint and increasing its size and influence in the Park, is in direct contravention of the Master Plan for Golden Gate Park, which says that institutions should not increase in size. At the very least, the Academy consultants and the Planning Department must fully reveal and study all the issues and present adequate mitigations so that this project will not negatively impact Golden Gate Park for several generations to come. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Because of the unstudied “Future Expansion” area in the Middle Drive facade setback zone, there is no way to evaluate what the impact of this addition will be. If they want environmental clearance to this part of their plans in the current DEIR, why hasn’t the Academy been required to give form to this future construct? Until the time when the Academy knows what the visual appearance and functioning of this area will be, this “Future Expansion” area should not be considered a part of this study and should require further environmental study at a later time. (*Jennifer Clary, President, San Francisco Tomorrow*)

Response

DEIR Chapter II, Project Description, p. 16, outlines the additional below-grade collections growth area, and indicates the proposed area on Figures 6, 7 and 8:

The new Academy would be designed to accommodate space needs for approximately twenty years after opening. Should additional space be required at that time, it would be constructed and accommodated in an additional two-story basement collection growth space approximately 80,000 sq. ft. in size, to be located below grade behind the Middle Drive East entrance, to the south of the main facility. Plan views of this area are illustrated on Figures 6 and 7, with a section view on Figure 8. This space would be intended primarily to house growth of the scientific collections and related support functions. The collections growth area would face the open air light well created by the adjacent façade as part of the new CAS facility. The distance between the adjacent façades would be about 40 feet, creating a courtyard at the lower basement level. A new corridor would connect the collections space to the balance of the facility. The southernmost wall of this space would be approximately 45 feet from the curbline of Middle Drive. This collections growth area is included as part of the project.

The DEIR analyzes this growth area in Section III.A, Land Use and Zoning, DEIR p. 28; Section III.B, Transportation, DEIR p. 51; Section III.C, Historic Resources, DEIR p. 114; and Section III.E, Visual Quality including effects on trees, on DEIR p. 135. See also Response on p. C&R-38 regarding effects on trees at the Academy site and the associated

Improvement Measure that is proposed as part of the project. The collections growth area would be below grade and therefore would not have shadow impacts.

In response to the reference to the *Golden Gate Park Master Plan*, that document includes Policy C – Modifications of Existing Buildings on pp. 3-17:

Assure that modification or replacement of existing park buildings is compatible with the landscape character and historic form of the park, and does not diminish existing open space, in accordance with policies contained in the Recreation and Open Space Element of the City's General Plan.

Paragraph 2 of this policy states:

2. Modification, replacement or reconstruction of existing buildings for seismic or other structural upgrades, accessibility, or mechanical system improvements should, to the greatest extent feasible, not increase the building's footprint, height, or bulk.

As discussed on DEIR pp. 15-16, the new Academy would provide greater floor area on a smaller footprint. The future collections growth space would be below grade and would retain open space above, as shown in Figure 8, DEIR p. 12, and would not increase the building footprint.

Golden Gate Park Master Plan Policy C also calls for review of expansion of existing facilities, including the CAS, to avoid adverse effects on the Park, in relation to demonstrated needs. The DEIR addresses those topics in Chapter II, Project Description, and Chapter III, Environmental Setting and Impacts.

Loading Operations

Comment

Page S-12 Service Loading - It is not clear from the project description how service vehicles will maneuver in and around the loading area. Based on the length and width of the loading area it appears that large trucks will need to back into this loading area (as it does not appear that there is room for a turn around). Please verify. It is not clear how garbage pick up vehicles will access garbage bins at the loading dock area. Please indicate how Sunset Scavengers will enter and exit this area and how they will pick up garbage from the facility.
(Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department)

Response

Due to the size and location of the loading facilities at the new Academy, smaller delivery/service vehicles would be able to drive straight in and maneuver within the loading area, whereas large vehicles (such as semi tractor-trailer) would need to back in. Semi-trailer deliveries would be relatively infrequent, and the Academy would schedule these at non-peak times to minimize disruption to Park roadways. Garbage trucks would be able to turn around within the loading area when no delivery/service vehicles are present. During other times, garbage trucks may need to back into the loading area. The dimensions of the loading area and the driveway would provide adequate space for these movements without disrupting traffic on Middle Drive East.

Comment

Page S-5 - Project Characteristics - Please verify location of garbage/recycling storage and method for garbage pick-up. Garbage containers for pick-up will not be permitted along Middle Drive East, as they will create a visual impact. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

All trash and recycling collection with the new Academy building would be accommodated in the below-ground service and loading area. Trucks would enter this area from Middle Drive East, via the driveway on the west side of the new CAS. No trash collection would occur on Middle Drive East. For clarification, the following sentence is added at the end of the first paragraph, DEIR p. 5:

The below-grade loading docks would include the trash and recycling collection area.
Collection trucks would enter this loading area to pick up trash and recyclables.

Approval Requirements

Comment

Page 22 - Approval Requirements - The Recreation and Park Department should adopt mitigation monitoring and reporting measures to ensure effectiveness of mitigation actions. This can be achieved by requiring the CAS to hire an independent agency to report back to the Department periodically. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

As noted on DEIR p. 22, Approval Requirements, “Each entity would adopt CEQA findings and a Mitigation Monitoring Program...” Under CEQA Guidelines Section 15097, the Recreation and Park Department/Commission would adopt a Mitigation Monitoring Program for measures under its jurisdiction. Mitigation Measures identified in DEIR Chapter IV would generally be implemented by the project sponsor, the California Academy of Sciences. The CAS or its contractors would be responsible for completing the monitoring and reporting requirements during project development and construction. The Recreation and Park Department would receive and review these reports.

Comment

The Recreation and Park Commission will be required to review any shadow impacts to Golden Gate Park prior to making findings of approval. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

As noted on DEIR p. 22, Approval Requirements, the Recreation and Park Department/Commission “considers potential Section 295 shadow impacts.” In addition, Section III.F, Shadow, DEIR p.152, discusses the application of Section 295 review of potential CAS shadow effects in the Golden Gate Park. For clarity, the list of Recreation and Park Department approval requirements on DEIR p. 22 is revised as follows to indicate the chronological steps:

Recreation and Park Department/Commission

- Consults with Project Sponsor on landscaping and restoration plans.
- Consults with Project Sponsor on project access plans, including land and sidewalk closures.
- Considers potential Section 295 shadow impacts.
- Considers project approval under City Administrative Code Section 2A.160 including design and approval.
- Takes certain actions related to public contracting under the City Administrative Code Chapter 6.
- ~~Considers potential Section 295 shadow impacts.~~

TRANSPORTATION

Setting

Comments

Directions from the East call for motorists to use the Fell Street offramp which no longer exists. (*Leah Shahum, Executive Director, San Francisco Bicycle Coalition*)

Response

DEIR p. 34, fourth paragraph, is revised as follows:

To access the Music Concourse area from the east, vehicles can use I-80 to US 101 (the Central Freeway) to the Mission Street off-ramp, and continue along Mission Street, Van Ness Avenue, Hayes Street and Gough Street to Fell Street to Kennedy Drive or Kezar Drive to King Drive.

Comment

Facility Clarification - On page 38, the DEIR states in a description of JFK Dr., "Pedestrian paths or sidewalks are also provided on both sides of the roadway..." It should be noted that the "sidewalk" along the south side of JFK is actually a multi-use pathway that permits skaters, bicyclists, and pedestrians. The north path is designated as pedestrian only. (*Leah Shahum, Executive Director, San Francisco Bicycle Coalition*)

Response

Section III. B. Transportation, DEIR p. 38, second full paragraph, is revised as follows:

John F. Kennedy Drive (Kennedy Drive) is a recreational street within Golden Gate Park and provides the primary east-west access across the northern side of the Park. Kennedy Drive has one travel lane in each direction, except for the segment between Eighth and Tenth Avenues which has two travel lanes in each direction. In the vicinity of the Music Concourse, on-street parking is generally provided along both sides of the street. The north path is designated as pedestrian only. The south side is a multi-use pathway that permits usage by pedestrians, bicyclists and skaters. The paths vary in width (generally 8 to 15 feet wide). The San Francisco General Plan identifies Kennedy Drive as a Recreational Street.

Traffic Impacts

Comment

A number of contradictions or inaccuracies occur in the document. The DEIR cannot simultaneously claim: "On Saturday, the New CAS would generate approximately 730 net-new midday peak hour person trips and approximately 665 net-new midday peak hours person

trips on Sunday" but "Overall, the proposed project would be considered to result in no significant traffic impacts during the Saturday midday and Sunday midday peak hours." (Page S-6) And "Drivers circling for parking within the Park and the surrounding neighborhoods may result in an increase in traffic volumes. . ." (Page S-8). Then "As the available parking supply within the Park and the surrounding neighborhoods is not concentrated in one locations, the new vehicle trips generated by this proposed project would be distributed throughout the study area. Therefore, there would not be a substantial increase in traffic volumes along most streets in and around the Park." (Page S-10)

These inconsistencies and contradictions cannot be allowed to stand in the Academy EIR.
(Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park)

Response

The comment cites the DEIR Summary, which includes a concise description of the project's transportation effects. Section III.B, Transportation, pp. 51-60, provides a detailed description of the project's effects. The cited text on Summary pp. S-6 and S-8 addresses Baseline plus Project Conditions (without the Phase I Underground Parking Facility). DEIR pp. S-8 and S-9 in addressing parking conditions with the Project without the Underground Parking Facility, states:

Drivers circling for parking within the Park and the surrounding neighborhoods may result in an increase in traffic volumes and congestion at intersections, including delays to traffic flow and MUNI bus operations. In addition, parking occupancies outside the study area would likely increase, and there would be the increased potential for illegal parking. As the available parking supply within the Park and the surrounding neighborhoods is not concentrated in one location, the new vehicle trips generated by the proposed project would be distributed throughout the study area. Therefore, there would not be a substantial increase in traffic volumes along most streets in and around the Park. Because these activities are temporary and difficult to predict, they cannot be reliably quantified. Therefore, it is not anticipated that the proposed project would have significant secondary parking impacts.

To correct a typographical error, the first sentence in the last paragraph, DEIR p. S-8, and the fourth paragraph, DEIR p. 59 is revised as follows:

Drivers circulating for parking within the Park and the surrounding neighborhoods may result in an increase in traffic volumes and congestion at intersections, including delays to traffic flow and MUNI bus operations.

On DEIR p. S-10, the cited text is part of a paragraph summarizing potential project traffic effects on roadways and whether those effects could affect transit operations, as discussed also on DEIR pp 44-45.

The New CAS would generate approximately 730 net-new person trips during the Saturday midday peak hour, and approximately 665 net-new person trips during the Sunday midday peak hour. As described on DEIR p. 53, these trips were assigned to the various modes of travel (including auto, transit, walk and other modes). As a result, the New CAS would generate about 160 new vehicle trips during the Saturday midday peak hour and 145 vehicle trips during the Sunday midday peak hour. As indicated in Table 6 on DEIR p. 57, there would be significant cumulative impact on Levels of Service (LOS). DEIR p. 86 identifies a considerable project contribution to a significant cumulative impact at the Fulton/Stanyan intersection. Chapter IV, Mitigation Measures, describes Measure 1, DEIR p. 166, that would avoid that cumulative effect.

The vehicle trips described above were assigned to the available parking supply in and around Golden Gate Park (see DEIR pp. 56-60). Because the available parking is spread throughout the north, east and south of the park, and within the Park, the vehicle trips destined to and from the CAS would not be concentrated in any one location in a manner that had not been addressed in the Project's traffic flow analysis. The DEIR analyzes the impacts of potential parking shortfalls on pp. 56-60, and concludes that vehicle trips generated by the project would not have significant adverse impacts at the study intersections.

DEIR p. S-6, last paragraph, also separately summarizes conditions with the CAS and the proposed Underground Parking Facility, as also discussed in detail on DEIR pp. 70-77.

Pedestrian and Bicyclist Impacts

Comment

Page S-11 - Pedestrian Impacts - It is anticipated that the Academy's attendance will significantly increase after the new Academy reopens, and that there will be thousands of pedestrian trips in the vicinity of the project site. The DEIR states that these pedestrian trips could be accommodated on the sidewalks and pedestrian paths adjacent to the project site and would not substantially affect the current sidewalk or crosswalk conditions. The DEIR, however does not contain findings to support that the existing pathways are sufficiently wide

and in safe condition for persons with disabilities, seniors and children attending in large groups as part of school functions. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

The travel demand associated with the project accounts for the increase in attendance anticipated at the new Academy. Those additional visitors would be spread throughout the day. During the Saturday and Sunday midday peak hours, the new Academy is estimated to generate approximately 730 and 665 net-new person trips, respectively, as shown in Table 5, DEIR p. 53. Based on this increase in activity spread over the peak hour, it is anticipated that the existing and proposed new pedestrian facilities would be adequate. As noted on DEIR p. 64, there is anticipated to be only a minor increase in the number of tour groups with the new facility (the number of school groups and camp groups are not anticipated to increase). The new Academy would include pedestrian routes and open space at the Academy Drive entrance, as shown on Figure 2, DEIR p. 6, as well as lobby areas that would accommodate tour groups and school groups without causing congestion on Park pathways. All sidewalks, pathways, and entrances at or near the Academy would meet applicable disabled access requirements as part of the Academy development. With the project, the entrances would be at grade with the Academy Drive, compared to the stairs now fronting Academy Drive. The new Academy would also provide a more direct accessible pedestrian route on the east side of the site. The current Academy has a service drive and steps at this location. The Academy would continue to consult with the Recreation and Park Department to ensure adequate pedestrian, tour group, bicycle, and disabled access to the Academy.

Separately, the GGPCA projects would maintain or improve accessible pedestrian routes in the Music Concourse area.

Comment

The Academy EIR claims that the project would protect existing circulation patterns, but their plans would actually block significant and historic existing pedestrian and bicycle rights-of-way. The public has been able to pass from east of the Academy to south from the Academy ever since the dedication of the Music Concourse in 1900. Currently the service road east of the Academy affords access to hundreds of pedestrians and bicyclists daily. The Academy proposal blocks this right of way forcing pedestrians to a single, one-story tall staircase, and

prohibiting bicycles entirely. In addition, two paths leading west from the southeast pedestrian tunnel will be removed, blocking access to the Academy for disabled persons.

The document is incorrect in stating that (the project) “would provide, among other things, for retention of significant landscape features and circulation patterns.” (Page S-3)

The document claims, “The basic circulation patterns in the site would be retained, with pedestrian access around the CAS perimeter.” This is NOT the case as access to the east of CAS is blocked and pathways removed elsewhere. (Page S-11)

The document stating that the Concourse Authority Projects would “improve pedestrian paths in the Concourse vicinity” is without foundation since, to date, no pathway proposals have been approved by the Concourse Authority. To credit the Authority in this EIR with improving pedestrian access is not justified. (Page S-11) (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Response

The comments cite text in DEIR Chapter I, Summary, regarding pedestrian conditions with the Academy. The Summary also refers to cumulative conditions if the GPCA Projects were implemented. Those topics are discussed in further detail in Chapter II, Project Description, and in Section III.B, Transportation. The Academy project would retain existing pedestrian routes along the eastern side of the Academy site and provide an additional pedestrian path around the new Academy. Those pedestrian routes are illustrated in Figure 2: Proposed Site Plan, DEIR p. 6. From Middle Drive East, pedestrians would use the new path under the trellis. The new path connecting the Academy Drive frontage of the new building to existing paths that lead to the Rhododendron Dell and to the southwest pedestrian tunnel would, as currently proposed, be a surface route, and would not include a stairway. The plans would retain the historic patterns of pedestrian routes near the CAS to the Music Concourse area.

Section III.B, Transportation, DEIR pp. 74-76 summarizes pedestrian and other surface improvements proposed as part of the CAS and GPCA projects. Since publication of the CAS DEIR, the GPCA has been refining and reviewing conceptual plans for pedestrian improvements in the Concourse vicinity, as well as a traffic calming and landscape plan for Kennedy Drive between Kezar Drive and Crossover Drive. Those current plans are consistent with CAS DEIR conclusions on DEIR pp. 74-76, that the CAS project would not have a significant adverse impact on pedestrian conditions.

Comment

Insufficient Bicycle Parking – The DEIR calls for 11 spaces for employees and an unspecified number of racks for patrons. We understand from discussions with CAS employees that the CAS intends to continue its program of providing attended bike parking for visitors once the new building is completed. We laud the CAS on efforts such as this to encourage non-vehicle access to their facility. (*Leah Shahum, Executive Director, San Francisco Bicycle Coalition*)

Response

The Academy has indicated that it is committed to providing bicycle parking beyond the Code requirement to address demand associated with the new facility. The Academy would continue its existing bicycle valet program, and would also consider options for providing additional bicycle parking in conjunction with the Underground Parking Facility, as well as perimeter parking around the Academy (in locations that are screened through berming and other landscape features). The Academy would consult with the bicycle community, including the Bicycle Coalition, in developing this program.

Comment

We would also like to reiterate that it is the preference of our members that the bicycle racks be located on the surface, in plain view of pedestrians, not underground in the parking garage, and be covered to protect against the elements. Bicyclists who are riding to the Park should not be forced to breathe car exhaust just to secure their bicycles. On page 76 of the DEIR, it states, “the underground parking facility would provide a (sic) 46 Class II bicycle parking spaces (bicycle racks) in the upper level of the parking facility...” We request that these 46 spaces be located on the surface of the Concourse in the fresh air, in plain view of passing pedestrians, and shielded from the weather. (*Leah Shahum, Executive Director, San Francisco Bicycle Coalition*)

Response

The comment refers to bicycle parking proposed as part of the GGPAC Phase I Underground Parking Facility. Bicycle parking spaces included in the Underground Parking Facility would be located on its upper level, adjacent to the main pedestrian access points. The bicycle spaces provided in the Underground Parking Facility would be separate from, and in addition to, the bicycle spaces provided by the Academy. As stated in the Response on p. C&R-52, the GGPAC projects are under the jurisdiction of the Golden Gate Park Concourse Authority, and the Academy is under the jurisdiction of the California Academy of Sciences Board of Trustees.

Comment

Status of Park Bicycle Facilities – On page 48, the DEIR states that, “most of the streets have sufficient right-of-way to allow bicyclists and vehicles to share the roadway.” We’d like to echo our statements made in response to the Parking Garage DEIR which conveyed similar beliefs about the Park’s bicycle facilities. Significant portions of Golden Gate Park’s roadways ARE NOT acceptable for bicycle travel. These include large sections of Martin Luther King Jr. Dr. and Middle Dr. East, two important access routes to the museum. Particularly on the section of MLK between Tea Garden and Lincoln, there are frequent and dangerous conflicts between Muni buses, cyclists, and motor vehicles. Providing bicycle lanes on this section of MLK should be a required mitigation for the 3 construction projects in the Concourse. (*Leah Shahum, Executive Director, San Francisco Bicycle Coalition*)

Response

As discussed on DEIR pp. 62–63, the new Academy would not be anticipated to substantially affect bicycle conditions in and around the project site, and would not result in any significant impacts requiring mitigation. As part of the GGPAC Projects, transportation improvements would improve bicycle conditions in the Park, including “restriping of King Drive to ensure visibility at crosswalks and bicycle lanes,” and “traffic calming on Middle Drive East in conjunction with the Concourse Parking Facility as needed.” At this time, bicycle lanes on this section of King Drive are not included in the GGPAC projects. (GGPAC Projects DEIR, p. 21)

Comment

Regional Access Concerns – The DEIR states that, “To access the Concourse area from the north via Park Presidio Blvd., vehicles are directed (by signs) to turn right onto Cabrillo Street, turn right onto Fourteenth Avenue, turn right onto Balboa Street, and then turn right onto 10th Avenue.” We request that this routing be modified to leave out Cabrillo Street from the route. Cabrillo Street is already identified in the General Plan as part of the citywide bicycle route. In addition, the Dept. of Parking and Traffic plans stripe Class II bike lanes along Cabrillo from Arguello to Ocean starting in May 2003. If these bike lanes affect ridership in similar ways to past bike lane stripings, bicycling on Cabrillo will increase substantially. Therefore it is inadvisable to direct car traffic onto Cabrillo. We suggest directing auto traffic to turn right on Balboa, right on 14th, to Anza to 10th Avenue. (*Leah Shahum, Executive Director, San Francisco Bicycle Coalition*)

Response

Section III. B. Transportation, DEIR p. 34 states:

To access the Concourse area from the north via Park Presidio Boulevard (SR 1), vehicles are directed (by signs) to turn right onto Cabrillo Street, turn right onto Fourteenth Avenue, turn right onto Balboa Street and then turn right onto Tenth Avenue. This route is necessitated by the left-turn restrictions on Park Presidio Boulevard. To return to the north, vehicles can turn right from Fulton Street to Park Presidio Boulevard.

This text refers to Section III.B, Transportation Setting, and describes current signage which directs vehicles to use one block of Cabrillo Street to reach Balboa Street. The project would not create significant impacts at this location and no changes to existing signage are proposed in connection with the project. As a part of implementation of the Underground Parking Facility, alternative directions and signage for such vehicle movements could be considered (GGPCA Projects DEIR, p. 194).

Disabled Access to the Academy

Comments

We would like to support the Academy report and say that the Academy is taking great care to include people with disabilities in the planning of this new facility and the environs around it, and we totally support it. (*August Longo, FDR Democratic Club*)

Actually, I have a back injury myself. I am extremely sensitive to disabled people, but there are things called ramps, wheelchair ramps, that have been extremely successful all over the city. You don't need to create this environmental catastrophe just to get people out to Academy of Sciences. That's the first thing I'd like to say. (*Katherine Roberts*)

Response

The new Academy would provide full access for persons with disabilities. The vehicle drop-off areas on Academy Drive and Middle Drive East would be at grade with entrances to the Academy, or with slopes compliant with ADA codes. All doorways, stairs and elevators serving the Academy would meet disabled access requirements.

Parking Impacts

Comments

In fact, there are contradictions in this Academy EIR that would controvert exactly what the garage project is planning to do.

If you remember, several months ago you had described for you the proposal for an underground parking garage in the Music Concourse area there under the current roadways to serve both institutions but to serve the park generally. And if you've not forgotten about this, there was controversy about the subject of whether or not this garage that had a second entrance in Golden Gate Park, after all Proposition J said that there wouldn't be, and about whether this garage would actually serve people who come for casual uses, who come for recreation or they come for a walk in the Rose Garden or something like that or to play tennis. Where else would they be able to park but a pay for parking garage. (*Mary Anne Miller*)

REDUCTION OF PARKING FOR NON-INSTITUTIONAL USERS - The DEIR states that 280 surface parking spaces will be removed from within a 1/4 mile radius of the Concourse, but outside the Concourse. However, the current inventory for this area is 450 spaces, causing a reduction of 62% of surface parking for all other attractions within this radius. In other words, the passive or recreational user of Golden Gate Park, who is not a visitor to the institutions and does not want to pay a parking garage fee to play tennis or walk in the rose garden, will have 170 fewer surface spaces available. Where will these casual users of the Park find parking? This is not analyzed in the draft document. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Response

These comments refer to surface parking removal proposed as part of the GGPCA Phase I Underground Parking Facility, as discussed on DEIR p. 74 and in Table 9, p. 75. Section III.B. Transportation, discusses parking effects assuming completion of the GGPCA Phase I Underground Parking Facility, on DEIR pp. 70-77, in "Baseline plus Project plus Underground Parking Facility Conditions." Within the eastern portion of the Park, all 200 spaces within the Music Concourse would be eliminated, in addition to about 280 spaces within a 1/4 mile radius of the Music Concourse (with Variant 1 of the GGPCA analysis). The Academy project itself would not remove parking in the Concourse area. With the proposed Underground Parking Facility, there would be an overall increase in parking supply in the eastern portion of the Park. As a result, the parking occupancies in the Park and the neighborhoods to the north, east and west of the park would be reduced, as shown in Table 9, p. 75.

Comments

STAFF PARKING NEED NOT ADEQUATELY ADDRESSED - The DEIR for the CAS states that the project will have a parking shortfall of 187 spaces on Saturdays and 171 on Sundays, due to the removal of existing off street Academy parking and increased staff. The needs of institutions' staff must be considered. As Proposition J states, the Garage may not reduce parking costs or otherwise "provide considerations" for staff parking which are not

also offered to the general public. This documents states that though the current staff and volunteer count is roughly 360 to 400, this number will increase to 440. (Page S-23) The increase in staff parking demand for both institutions is not adequately assessed in either the Academy or the deYoung EIRs. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Demand for staff parking for both major institutions has not been evaluated. Numbers of projected staff have been given as upwards of 440 persons. An estimate of de Young staff was offered at a public meeting prior to the publication of the de Young EIR but that figure should also be given in the Academy document, to assess the demand for staff parking from both institutions. If staff receives free parking in the Concourse Garage, that would violate Proposition J, which prohibits special pricing that is not also offered to the general public. (*Jennifer Clary, President, San Francisco Tomorrow*)

Response

The effect of the new staff associated with the Academy project was incorporated into the analysis. As noted on DEIR p. 53, based on information provided by the CAS, there would be an increase of 13 staff members on Saturdays with the new Academy. Existing CAS staff is about 400 persons. Because of field activities, not all CAS employees are present every day of the week. The parking demand associated with this increase was included the overall parking demand calculations. For the analysis, the parking demand associated with the institutions, including existing and future employment at the Academy and the New deYoung Museum was included in the overall parking demand discussed on DEIR pp. 56-60. The New deYoung Museum expects an increase of about 50 employees and volunteers, totaling about 210 staff at their site. It was not assumed that existing or new staff at the Academy or the New deYoung Museum would have preferential rates or usage at the proposed Underground Parking Facility, and the Academy has confirmed that it would not provide paid or discounted employee parking.

Saturday Closure

Comment

Saturday closure should not be linked to LOS impacts from Concourse Projects – On page 69, the DEIR states that, “a monitoring program would be established (if and when unacceptable conditions are observed that could not be mitigated by other measures, the Saturday closure of Kennedy Drive would be discontinued).”

Saturday closure is a proposal being considered by the Board of Supervisors to improve the role of Golden Gate Park as a respite from urban noise, pollution, and danger associated with motor vehicle traffic. It is being considered independently from the Concourse projects. If the Board does approve this proposal, it should not be considered an option to “mitigate” traffic impacts that have arisen from the garage or the institutions by opening up JFK to motor vehicles. Instead, other options should be considered that are more in line with the City’s general plan and environmental goals, such as improvements to bicycle and pedestrian facilities, and improvements to public transit. If revoking Saturday closure were a valid mitigation measure, then closing the Concourse parking garage because of its contribution to congestion should also be considered a viable mitigation measure. (*Leah Shahum, Executive Director, San Francisco Bicycle Coalition*)

Response

Section III. B. Transportation, DEIR pp. 68–70, reviews the proposed Saturday closure, which is a project independent of the Academy. The cited text is a mitigation measure identified in the Saturday Closure analysis, and is not a mitigation measure for the Academy project. Under the 2015 Cumulative conditions, the impact at the intersection of Fulton/Stanyan during the Saturday midday peak hour discussed on DEIR p. 69 would be directly related to the proposed closure of Kennedy Drive and not the proposed Underground Parking Facility, Academy, or New deYoung Museum. Saturday closure would have potential significant LOS impacts with Existing Conditions, with Baseline plus Underground Parking Facility conditions, and with Cumulative 2015 conditions. The unmitigated effect at Fulton/Stanyan would occur with 2015 conditions. Therefore, the findings of Saturday closure study were as follows, as noted on DEIR p. 69:

All significant impacts of the Kennedy Drive Saturday closure could be mitigated, with the exception of Fulton/Stanyan under the 2015 Cumulative scenarios. At this location, when the Saturday closure is added to the 2015 cumulative conditions which consider the other Park projects, the previously identified mitigation measure would not improve operating conditions to acceptable levels. As a result, a monitoring program would be established (if and when unacceptable conditions are observed that could not be mitigated by other measures, the Saturday closure of the Kennedy Drive would be discontinued).

HISTORIC RESOURCES

Setting

Comments

For a project of this importance and magnitude, and in view of the historical importance of the project sponsor, the California Academy of Sciences, the “Background of the CAS” section ought to include at least one photograph of the 1891 Academy of Sciences Building on Market Street. I believe that structure abutted the northeast side of the Emporium Building, where the Commercial Building (a.k.a., James Bong Bldg.) now stands. I’m sure the CAS and/or the S.F. Public Library History Room have one or more such photos available (one can be seen in *The Earth Shook, the Sky Burned*, the classic book about the 1906 disaster). (Michael Levin)

Response

Figure C&R-1, below, is a photograph of the exterior of the former California Academy of Sciences at 833 Market Street, between Fourth and Fifth Streets. As noted in Section III.C, Historic Resources, DEIR p. 93, that building was completed in 1891 and destroyed in the 1906 Earthquake and Fire.

Comments

The “Background” section briefly describes architect Lewis Hobart’s plans for the CAS complex and mentions his training at the Ecole des Beaux Arts, but there should be additional discussion of the significance of the Classical Revival façades of his buildings, because those stately façades will be totally lost (except for the north & east façades of Simson African Hall, which would not look the same behind the new perimeter columns and overhanging roof). The existing original façades relate so well with other elements of the Music Concourse area - the classically designed Temple of Music to the west and the Francis Scott Key Monument to the east. (Michael Levin)

Response

As noted in Section III.C, Historic Resources, DEIR p. 89, the architectural surveys and setting is summarized primarily from *An Evaluation of the Potential Effect of the Proposed California Academy of Sciences on Historical Resources, and National Register of Historic Places, and California Register of Historical Resources*, prepared by Page & Turnbull, Inc.

In addition to the description of the Lewis Hobart designs for North American Hall, Steinhart Aquarium, and Simson African Hall on DEIR pp. 107–111, the Page & Turnbull report



5.30.03

SOURCE: Page & Turnbull / California Academy of Sciences

CALIFORNIA ACADEMY OF SCIENCES PROJECT

FIGURE C&R 1: VIEW OF CALIFORNIA ACADEMY OF SCIENCES AT 833 MARKET STREET, CIRCA 1891

includes further detail on the Classical Revival designs of the North American Hall and Simson African Hall.

The main façade of the North American Hall is described as seven bays wide, with slightly recessed corner bays. These corner bays contain recessed niches with hemispherical coffered domes. The niches are further embellished with carved pedestals, full entablatures, and projecting decorative keystones. The other five bays are articulated by blind pedimented panels. The façade is embellished with Classical Revival ornamental details such as a dado and surbase moldings running along the lower part of the façade, Tuscan order pilasters, a full entablature, and decorative quoining demarcating the corner bays. The walls are clad in limestone except for the water table, which is granite. Granite was probably chosen for the water table due to its superior resistance to weather. Due to some fairly significant spalling (caused by corroded clamps holding the limestone onto the building), the façade is in poor condition, yet it retains a high degree of integrity. As noted later in the report, however, the North American Hall's overall condition is such that the report concludes that the building lacks sufficient integrity to be listed on the California Register of Historical Resources. (*Page & Turnbull, pp. II-64 – II-79.*)

Virtually identical to the façade of the North American Hall of Mammals, the façade of Simson African Hall is seven bays wide, with slightly recessed corner bays. The corner bays contain recessed blind niches with hemispherical coffered domes. The niches are further embellished with carved pedestals, full entablature, and boldly projecting keystones. The other five bays are articulated by blind, pedimented panels. The façade of Simson African Hall is also detailed with plinth, dado and surbase moldings, Tuscan Order pilasters, a full entablature and decorative quoining. The only visible perceivable departure from the design of the North American Hall is the exterior wall cladding. On the earlier North American Hall the cladding is limestone above the water table and granite below, whereas the façade of Simson African Hall is entirely clad in limestone. The façade of Simson African Hall is in good condition and retains a high degree of integrity. (*Page & Turnbull, pp. II-92 – II-93.*)

Figure 12, Academy Buildings by Name and Date of Construction, DEIR p. 95; Figure 13B, Revised View of Academy (1960), DEIR p. 97; and Figure 15, Contemporary Exterior View

of Simson Africa Hall, DEIR p. 99, illustrate the architectural character of the Lewis Hobart buildings.

The DEIR notes on p. 108 that North American Hall does not retain sufficient integrity to be listed on the *California Register of Historical Resources*, and demolition of that building as part of the project would not be a significant adverse effect on historic resources. The DEIR concludes on p. 111 that Simson African Hall retains sufficient integrity to be listed on the *California Register of Historical Resources*, and its alteration as part of the project would be a significant adverse effect on historic resources. The project, as noted on DEIR p. 115, would incorporate most of Simson African Hall into the new building, with a change in setting:

The proposed project would envelop Simson African Hall with a new building adding to the massing of the structure. The new overhanging and undulating roof would visually alter the appearance of the north-facing façade. These changes would effectively alter the spatial relationship of the building to its original surrounding environment and change the original massing design.

DEIR pp. 116–117 describes the project effects in relation to the Music Concourse as a resource eligible for the *California Register*, and concludes:

While the proposed construction would change the setting of the vicinity, these changes would not be significant enough as to affect the integrity of the Music Concourse as an historic landscape. The landscaped bowl would remain intact and unaffected by CAS construction, its potential eligibility unchanged. As a result, the proposed project would have a less-than-significant impact on the potential historic significance of the Music Concourse.

The relationship of the existing North American Hall and Simson African Hall façades to the Music Concourse is also illustrated in Section II.D, Visual Quality, Figure 18, View South from Tea Garden Drive near the deYoung (Existing View 1), DEIR p. 127, and Figure 19, View Southwest from the Music Concourse (Existing View 2), DEIR p. 128. With the proposed Academy, the major exterior features of Simson African Hall would be retained, as shown in Figures 18 and 19, Proposed Views, with the trellis roof overhangs, shown as shading the façades in the figures. North American Hall would be demolished; the new building would include stone materials, proportions and dimensions to reflect the massing of North American Hall. The DEIR, on pp. 132–138 reviews those changes and concludes that

the CAS project would not have a significant adverse effect on visual quality in the Music Concourse.

For clarity, the following text is added to the DEIR:

In Chapter II, Project Description, DEIR p. 15, add a new last paragraph:

North American Hall would be one of the buildings demolished for the project. The new construction on west end of the site fronting the Music Concourse would include stone, other materials, proportions and dimensions to reflect the overall character of North American Hall.

In Section III.C, Historic Resources, DEIR p. 115, add a new third full paragraph:

North American Hall would be one of the buildings demolished for the project. North American Hall is not considered eligible for the *California Register*, and therefore its demolition would not be a significant adverse effect on historic resources. The new construction on the west end of the site fronting the Music Concourse would include stone, other materials, proportions and dimensions to reflect the overall character of North American Hall.

In Section III.D, Visual Quality, DEIR p. 133, add the following at the end of the first full paragraph:

As seen in Figure 19B, the Classical Revival façade of Simson African Hall would continue to be visible from the Music Concourse. The new construction on the west end of the site fronting the Music Concourse would include stone, other materials, proportions and dimensions to reflect the overall character of North American Hall.

Goethe and Schiller Monument

Comments

HISTORIC ISSUES ARE NOT ADEQUATELY DISCUSSED - The document states that the project, "would not alter any historical character-defining features of the resource." However, the footprint of the proposed structure would impinge on the current placement of the Goethe and Schiller statues. The document does not state that this monument, which must clearly be considered a character-defining feature, will have to be moved. A new location is not shown in this document, but other public presentation of the project have relocated the statue directly next to an exhaust stack for the GGPAC garage, in effect defiling this cultural monument.
(Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park)

Historic Resources - What will be the location of the statues that must be removed and placed in another location and how will they be safeguarded during construction? (*Jennifer Clary, President, San Francisco Tomorrow*)

Response

Plans for statue protection and relocation would be subject to approval by the Arts Commission and its Visual Arts Committee, which oversees monument relocations, including identifying appropriate alternate locations and insuring that plans are made for storing and safeguarding monuments. The final relocation plan has not yet been approved for the Goethe and Schiller Monument now sited near the northeast corner of the existing CAS; however, the monument would remain in the Concourse vicinity. The monument would be moved during construction and stored. The Arts Commission has identified potential relocation sites but has not yet reached a final decision. The relocation of the monument would not be considered an adverse effect on historic resources, as discussed on DEIR p. 118.

Pedestrian Tunnels

Comments

The pedestrian tunnels should be treated as an historic resource in this DEIR. (*Jennifer Clary, President, San Francisco Tomorrow*)

My concern is the tunnels that service the area. Now, my question is, this is right next to the Academy. I've asked this question many times. What will happen with this area? If you look at the EIR for the garage, you will see that it is not particularly defined. Then if you go to the EIR for the Academy, the tunnel has been completely removed as have the pathways. Now, the other day there's a model which should be here today that was presented, and in this model they have actually put a retaining wall which boxed this area, and if you carry this on out and look at the existing pathway, you'll see that there is the tunnel. There are the five pathways, two of which will be removed entirely by this project. None of these are shown in the document. I think it should be dealt with in the document. (*Christopher Duderstadt, Alliance for Golden Gate Park*)

I had the good fortune of being able to see the model of the project and was very happy with the way it was designed in as much as this is not only a place for people to go to observe nature but also for many scientists and naturalists who work within there. So many of these things have been incorporated. My only concern with this, as has been alluded to in some of the comments, is that we are dealing with multiple projects here. We want to make sure that the EIR does not necessarily address the tunnels which are addressed in the Concourse and the parking garage EIR, and it's my understanding that this project can go forward independent of what decision is made on those tunnels. And if that is the case, then I would say that the EIR

is comprehensive. If that's not the case, then I think there is an overlap and there is a problem in that regard. (*Michael J. Antonini, San Francisco Planning Commission*)

Response

The New CAS would not affect the existing pedestrian tunnels in the Music Concourse area. The New CAS site would not include construction at the southeast or the southwest pedestrian tunnels.

As discussed in the *Golden Gate Park Concourse Authority Projects DEIR*, Chapter II, DEIR pp. 9 and 12, the Phase I Underground Parking Facility would affect the three pedestrian tunnels in the Music Concourse:

The [Phase I Underground Parking Facility] project would include the reconstruction and restoration of the two easterly pedestrian tunnels and portals in their current location to meet current structural codes (see Figure 5); circulation through the pedestrian tunnel would remain independent. The parking vehicle tunnels would pass below the pedestrian tunnels (see Figure 5). The existing southwest pedestrian tunnel beneath Academy Drive would be reconstructed with restored portals, with pedestrian circulation through the upper level of the parking facility. This reconstructed tunnel would include doorways in the tunnels, to shield views and noise from the garage. A grade change between this tunnel entrance and the parking facility would include steps and ramps.

Those changes would occur only with development of the GGPAC projects. As discussed in the *Golden Gate Park Concourse Authority Projects DEIR*, Section III.C, Historic Resources, DEIR pp. 88-92, reconstruction of the pedestrian tunnels as proposed would not be considered a significant adverse impact on historic resources.

With regard to pathways near the CAS that would serve the southeast pedestrian tunnel, the area under the trellis on the east side of the CAS would serve as a path between the Concourse and Middle Drive East. The pedestrian routes have been designed to respond to conditions on the site and vicinity including the grade change between the Concourse/tunnel areas and the main, north façade of the CAS facility. The plan would be flexible and would be modified to adapt to any change in conditions or refinements that may occur as part of the Concourse projects review process. A staircase from the path to the east would allow pedestrians either to walk up the staircase to the entrance on Academy Drive or to proceed under the trellis to Middle Drive East. The staircase would separate pedestrians from bicyclists who would

instead continue along an existing pathway located in the wooded area east of the CAS. The new stairway would address the grade change; however, fully accessible, ADA-compliant front door access would also be provided from paths serving the southeast pedestrian tunnel.

Shakespeare Garden

Comments

NEGATIVE IMPACTS TO SHAKESPEARE GARDEN - All service access for the Project is proposed to be combined into a single widened service road on the western side of the building and is pushed from 40 feet to 20 feet closer to the Shakespeare Garden. The DEIR proposes that as the service area is below grade the impacts will be diminished. The reality is that trucks will be climbing out of this area to reach grade level directly adjacent to the space used for weddings. There are as many as four weddings per weekend scheduled in this area and clearly the Academy service traffic will have an impact on these activities. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Response

Figure 2: Proposed Site Plan, DEIR p. 6, illustrates the proposed CAS loading area driveway at the west end of the site, adjacent to the Shakespeare Garden. Section III.B, Transportation, DEIR p. 63, notes that the CAS would expect 15 to 25 deliveries per day, or about two to three trips per hour over an eight-hour day. Those deliveries would generally be by vans or small trucks, concentrated on weekdays. Therefore, delivery truck operations would not be expected to disturb weekend activities at the Shakespeare Garden, including weddings. Project effects on the Shakespeare Garden are discussed in Section III.D, Visual Quality, DEIR p. 134, which states:

The westernmost edge of the proposed below-grade loading docks of the new CAS would be set back approximately 20 feet from the eastern boundary of Shakespeare Garden, compared to a setback of approximately 40 feet from the existing CAS loading area. The loading area of the new CAS would be mostly obscured from view from within Shakespeare Garden, as this facility would be below grade and partially screened by existing vegetation surrounding the Garden. Through increased setbacks, below-grade loading facilities, and existing and planned landscaping in this location, the proposed CAS would be considered to have a positive visual effect on Shakespeare Garden, and would enhance enjoyment of this recreational area in the Park.

Section III.F, Shadows, DEIR p. 160 also describes effects on the Shakespeare Garden:

June 21

At 10:00 AM Pacific Daylight Time (PDT) on June 21, new shadow would cover about 30-35 feet around the northwestern and the southwestern sides of the Academy, into the mixed coniferous trees at the northern edge of Shakespeare Garden (see Figure 25, p. III.F-6). Compared to existing shadows, new shadows in the Shakespeare Garden would be reduced by about 70 feet in length, which would allow for more sunlight to penetrate this part of the Park, and would be considered a beneficial effect of the proposed project. At noon on June 21, project shadows would cover a strip approximately 25 feet wide along the entirety of the northwestern side of the Academy. At 3:00 PM on June 21, the building would add new shade to a strip approximately 25 feet wide along the entirety of the northeastern side of the Academy, primarily within the service road.

VISUAL QUALITY

Changes in Topography

Comment

On a larger issue is the whole concept that Prop J states that there shall be no raising of the elevation of the Concourse. Now, I've been fortunate enough, I went to the Planning Commission and asked them for current topographical information on the Concourse. I was sent to the architects Gordon Chong, who were kind enough to give me this information. I have taken the red as the current. Just as an example, I have taken the red as the current [plan]. They also gave me the current plan. (*Christopher Duderstadt*)

Response

The comment is noted. Section III.D, Visual Quality, describes changes in conditions with the New CAS; the Academy project would not substantially change the elevation or topography of the Music Concourse area. See also Response on p. C&R-30, Historical Resources, concerning pedestrian routes around the CAS.

Visual Quality Effects

Comment

In order to minimize the visual impacts associated with paving visible from Middle Drive East and to provide additional landscaped buffer for the Shakespeare Garden from the project, the Recreation and Park Department strongly recommends reducing the width of the 56 foot wide access road leading to the loading area. The Department suggests reducing the width to what would be necessary for loading and emergency vehicles and eliminating the 15 parallel parking

space for other CAS service vehicles. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

The proposed CAS driveway and loading area would accommodate delivery, service, trash and recycling, and other loading activities. The loading area would also provide parking for approximately 14 CAS vehicles, such as vans, boat trailers, and other operational vehicles. The spaces would not be used for employee parking. Of these 14 spaces, 10 would be parallel parking spaces along the loading driveway, and four others would be in the loading area. The CAS is currently reviewing off-site options with the Recreation and Park Department and would consider such options if they were feasible based on operational and cost considerations. Elimination of the parallel parking spaces would result in a reduction in driveway width of approximately 8 to 10 feet.

Comment

Page 123 - Visual Quality - The DEIR should include a rendering elevation of the existing and new Academy viewed from the south. The elevation would be reviewed to ensure that the proposed building elements would not visually impact the park when viewed from the Big Rec. softball fields, parallel to Lincoln Way. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

In response to this comment, Section III.D, Visual Quality, includes additional text and graphics discussing views of the CAS from the south. Views of the Academy would continue to be apparent through the tree cover. Those changes would not be considered to be significant adverse effect on visual quality. The second full paragraph on DEIR p. 125 is revised as follows:

Photographs showing representative views of the project site have been taken at ~~four~~
five locations in the project vicinity (see Figure 17). These views include a view south from Tea Garden Drive near the deYoung Museum (Figure 18A); a view southwest from Tea Garden Drive near the northeastern end of the Concourse (Figure 19A); a view northeast from the Shakespeare Garden (Figure 20A); and a view northwest from Middle Drive East near the Big Rec. Ball Field and the AIDS Memorial Grove (Figure 21A), and a view north from Big Rec Ball Field (Figure 21.1A). Viewpoints from outside the Park, such as from the Sunset District, were not selected as representative

views of the project, as neither the existing CAS nor the proposed new CAS would be visible from these areas.

The following text is added at the end of the first partial paragraph on DEIR p. 131:

On Figure 21.1A, a view north from Big Rec Ball Field, the existing Academy is seen through trees that are south of Middle Drive East.

The following text is added as a new first full paragraph on DEIR p. 135:

On Figure 21.1B, portions of the new Academy would be visible from the Big Rec. Ball Field area to the south. The views would be intermittent within the existing tree cover south of Middle Drive East.

Figure 17 (Revised), DEIR p. 126, Viewpoint Locations, is shown below to include the location of new Figure 21.1.

Figure 21.1: View North from Big Rec Ball Field, below, is added as a new figure on DEIR p. 130a.

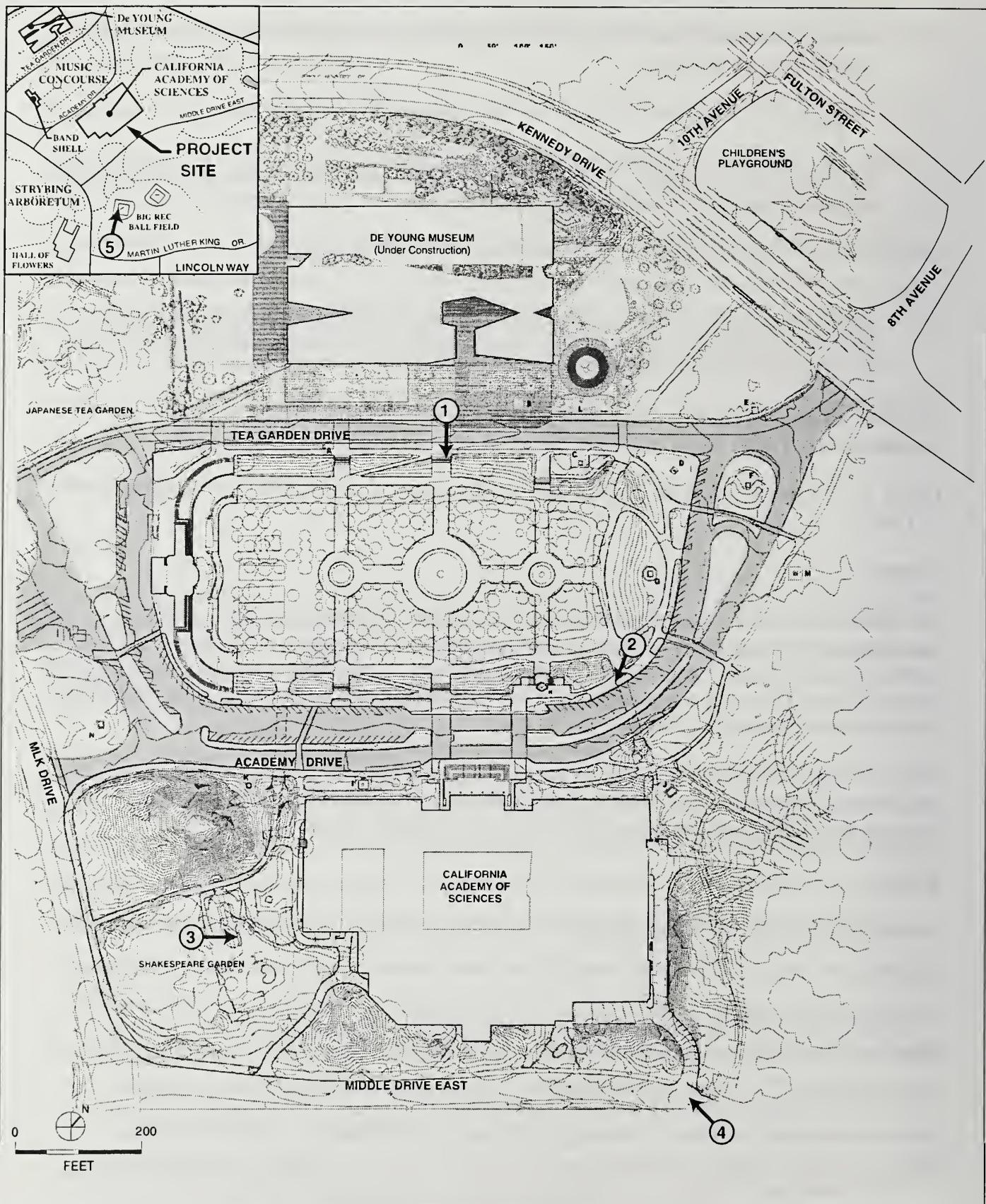
Comment

The great aesthetic appeal of those imposing, light-colored classical façades, contrasting beautifully with the greenery of the surrounding park, should be more carefully considered before giving it all up for a structure of a starkly different appearance. But the images in DEIR Figures 18 and 19 do not adequately depict the façades of the existing and proposed buildings, due to the trees in those locations.

There should be an additional image of the existing buildings and of the proposed structure that affords a clearer, closer view of at least part of the façades, so that one can really compare the existing and the proposed structures. (*Michael Levin*)

Response

Section III.D, Visual Quality, DEIR pp. 132-133 describes views of the proposed Academy, including the retained Simson African Hall and other features of the new design. The text describes the relationship of the Academy to the surrounding landscape of Golden Gate Park, and concludes that the project would not have a significant adverse effect of visual quality. As noted on DEIR p. 132, the visual simulations include basic architectural and landscape elements that would be incorporated in the project and illustrate the overall height and massing. Further architectural detail is not provided and is not required for adequate analysis



SOURCE: Square One Productions, Gordon H. Chong & Partners

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 17 (REVISED): VIEWPOINT LOCATIONS



EXISTING VIEW 5



PROPOSED VIEW 5

Note: These images illustrate basic massing with some architectural detail,
but are not intended to represent final architectural design.

10.22.02

SOURCE: Square One Productions

GOLDEN GATE PARK CONCOURSE AUTHORITY PROJECTS
FIGURE 21.1: VIEW NORTH FROM BIG REC BALL FIELD

of visual quality effects for purposes of the DEIR. However, decision-makers may consider this issue as part of the approval process for the project.

Comment

Visual Impacts. Treatment of visual impacts in this DEIR is inadequate to permit public understanding and evaluation of the appearance the new Academy will make against the backdrop of Golden Gate Park.

There is no adequate visualization of the southeast facade, which is said to be mainly a curtain wall of glass, and no study of the impact of this wall of glass on the surrounding Park ambiance. ... Will the windows of all the offices which are contained by this Middle Drive elevation be heavily tinted or dark in appearance? Will they have a mirror-like appearance? The make-up of this glass wall is highly important to the Middle Drive facade. Looking at a wall of office cubicles will not be an amenity for the Park ambiance, but neither would the use of heavily tinted, dark or mirror glass be desirable. The treatment of this facade will make all the difference in whether this building appears to be imposed upon the Park as an artificial and monumental construct, or whether it appears to fit into the Park surroundings.

The goal of making this a sustainable building and not requiring the use of air conditioning cannot be comprehended if the southeastern façade is made of glass which will cause considerable heat gain. (*Jennifer Clary, President, San Francisco Tomorrow*)

Response

As discussed in the Response on p. C&R-8 the southeastern façade would be designed to promote sustainability objectives. Because the ambient outdoor environment is cooler than interior needs, the sustainability strategy relies on capturing sunlight and heat, which would be transferred to the concrete thermal mass of the building. The overhang and exterior shades ensure that there would be no glare impacts. With respect to the visual environment, the glass would not be reflective but would be transparent. The floor plan has been designed to provide exterior views. Work stations would not be placed against the windows; the floor plan would have a circulation path along the perimeter.

Section III.D, Visual Quality, includes Figure 21: View Northwest from Middle Drive East, and illustrates this southeastern façade. DEIR pp. 134-135 discusses views of this element of the CAS, and concludes that there would not be a significant visual impact.

Landscaping/Effects on Trees

Comments

There is no comprehensive list of trees to be lost in the greater Music Concourse area although many trees will have to be removed and some have already been removed for the construction of the deYoung. Some that were removed were slated “to be retained” in the deYoung EIR.

The trees that will be lost in the wake of the Academy construction are not located and listed in the DEIR. (*Jennifer Clary, President, San Francisco Tomorrow*)

IMPACTS TO SIGNIFICANT TREES NOT ADEQUATELY PRESENTED - “Destroy a public building and it can be rebuilt in a year; destroy a city woodland park and all the people living at the time will have passed away before its restoration can be effected.” *William Hammond Hall, 1846-1934.*

By overlaying the Academy project over existing aerial views of the site, it is revealed that many significant trees must be removed from the project area. There is no discussion of the visual and environment impacts of this extensive tree removal in this document. In order to make an informed decision concerning the environmental impacts of the Academy project on Golden Gate Park, an inventory must be made showing exactly which trees will be need to be removed. The Alliance has been informed that the project architects have inventoried all of the trees in the area and could easily create a plan view showing exactly which trees are involved, but they have not been asked to do so for the completion of this document. The Alliance requests that such an inventory be published as part of the EIR document. The tree removal should be discussed by the concerned agencies and a firm agreement approved between the Academy and the Recreation and Park Department. This was not done with the new deYoung Museum project and many significant trees have now been removed that, because of representations in the EIR photo visualizations, were thought by the public to be protected. However, unfortunately there was no exact inventory presented at the time of the EIR. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Response

The Academy project would remove approximately 100 trees and large shrubs and plant approximately 180 new trees. Of the 100 trees to be removed, approximately half are either very small trees or are in poor condition. The overall site plan, with relocation of the physical plant and reconfiguration of the driveway, was revised to limit removal of vegetation at the southeast area of the project site, which contains an important tree stand, according to the tree inventory prepared for the site. As part of the future collections growth space, approximately 25 to 30 additional trees could be removed. The project includes an improvement measure that would require review of final landscaping plans by the Recreation and Park Department to ensure that adverse effects on important, mature trees are minimized.

The following describes the general categories of existing plant materials surrounding the current Academy and the proposed landscaping plan.

Forest Canopy

The surrounding forest canopy consists of a combination of California Redwood Trees (*Sequoia sempervirens*), Monterey Pine Trees (*Pinus radiata*) and Monterey Cypress Trees (*Cupressus macrocarpa*). There are several significant Eucalyptus Trees (Eucalyptus globules) and one significant Bunya-Bunya Tree (*Araucaria bidwillii*). These trees provide the canopy around the existing structures. A survey of trees included 94 trees within the canopy, 23 of which would be considered understory trees, discussed below. The current site plan describes five significant trees for removal: three 24-inch caliper California Redwood Trees along Middle Drive East and two 31-inch caliper Monterey Cypress Trees at the proposed loading dock. (Caliper is the trunk diameter measured 12 inches above the ground.) In summary, out of 71 forest canopy trees surveyed, five larger trees would be removed and about 50 smaller trees removed. No canopy trees would be removed along the north, east, or west elevations of the Academy.

Forest Understory

The forest understory consists of a mix of large shrubs, including (*Myoporum laetum*), Mayten (*Maytenus boaria*) and Pittosporum (*Pittosporum undulatum*). Many of these shrubs are overgrown or in poor health and would be removed as part of a general cleanup of the site. The current site plan proposes the removal of 23 understory shrubs within the forest canopy on the south, west and east side of the Academy.

Ornamental Planting

Many varieties of ornamental plantings have been added along the north side of the Academy of Sciences over the years. Most notable are the six Stone Pines (*Pinus pinea*), flanking the Academy entrance, and six Mayten Trees (*Maytenus boaria*) in front of Simson African Hall. Those trees, along with a variety of smaller ornamental plantings would be removed. Approximately 12 major ornamental trees and approximately 10 smaller ornamental trees and shrubs would be removed for Academy construction.

Proposed Tree Planting

The preliminary Academy landscape plan shows 60 proposed accent trees along Academy Drive. These would be deciduous trees planted in formal lines following the proposed building grid. Ginko Trees (*Ginko biloba*) or Tulip Trees (*Liriodendron tulipefera*) have been suggested as possibilities. The remaining forest canopy would be supplemented with approximately 120 evergreen trees. Those would be a mix of Redwood Trees (*Sequoia sempervirens*) and Cypress Trees (*Cupressus macrocarpa*) and would be used to enhance the screening adjacent to the Shakespeare Garden and the surrounding Park. The forest canopy would be supplemented with a variety of understory plantings to further enhance screening and maintain the pastoral park landscape.

The detailed tree inventory and preliminary landscaping plan is on file and is available for public review by appointment at the San Francisco Planning Department, 1660 Mission Street, Suite 500.

See also Response on p. C&R-41, concerning revised Improvement Measure 5 to provide a detailed landscaping plan to the satisfaction of the Recreation and Park Department.

Comment

The Academy proposes boiler and generator rooms which would extend 60 ft. to the east of the current structure (figure 10) forcing any alternative roadway right of way into an area where significant old growth forest currently stands and causing the removal of dozens of trees. Only through provision of graphic plan and section views can the roadway, which is shown as part of the proposed garage project in the Garage DEIR as passing just east of the Academy, be seen as rendering impossible the Academy's installation of its infrastructure in the same place. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Response

As discussed in the Response on p. C&R-59, an Underground Through Street is part of Phase II analyzed in the GGPCA Projects DEIR. As noted in Project Description, p. 20 -21 of the Academy DEIR, the GGPCA projects are independent of the CAS project. GGPCA Projects DEIR, Figure 4: Proposed Site Plan with Phase II, illustrates the proposed alignment of the Underground Through Street with the ramp at Middle Drive East near the Academy. That

alignment accounts for the Academy project, including basement-level utilities at the southeast corner of the Academy site. Figure 6: Floor Plan Basement Level B-1, Academy DEIR p. 10, illustrates this utility space. The Academy project as proposed would not preclude development of the Underground Through Street.

A figure submitted with the comment illustrates a potential alignment of a surface through street and is included below. That figure is consistent with GGPAC Projects DEIR Alternative E: Surface Through Street, GGPAC Projects DEIR pp. 218-221, including Figure 27, DEIR p. 219. As noted on GGPAC Projects DEIR p. 220:

Impacts on historical resources would be similar to Phase II of proposed project with the introduction of a new circulation feature and pattern in the Music Concourse vicinity. The introduction of a new surface road and traffic circle would alter spatial relationships and circulation patterns important to defining the character of the Music Concourse and may threaten its potential eligibility for the California Register of Historic Resources. This would be considered a significant adverse impact.

Mitigation Measures

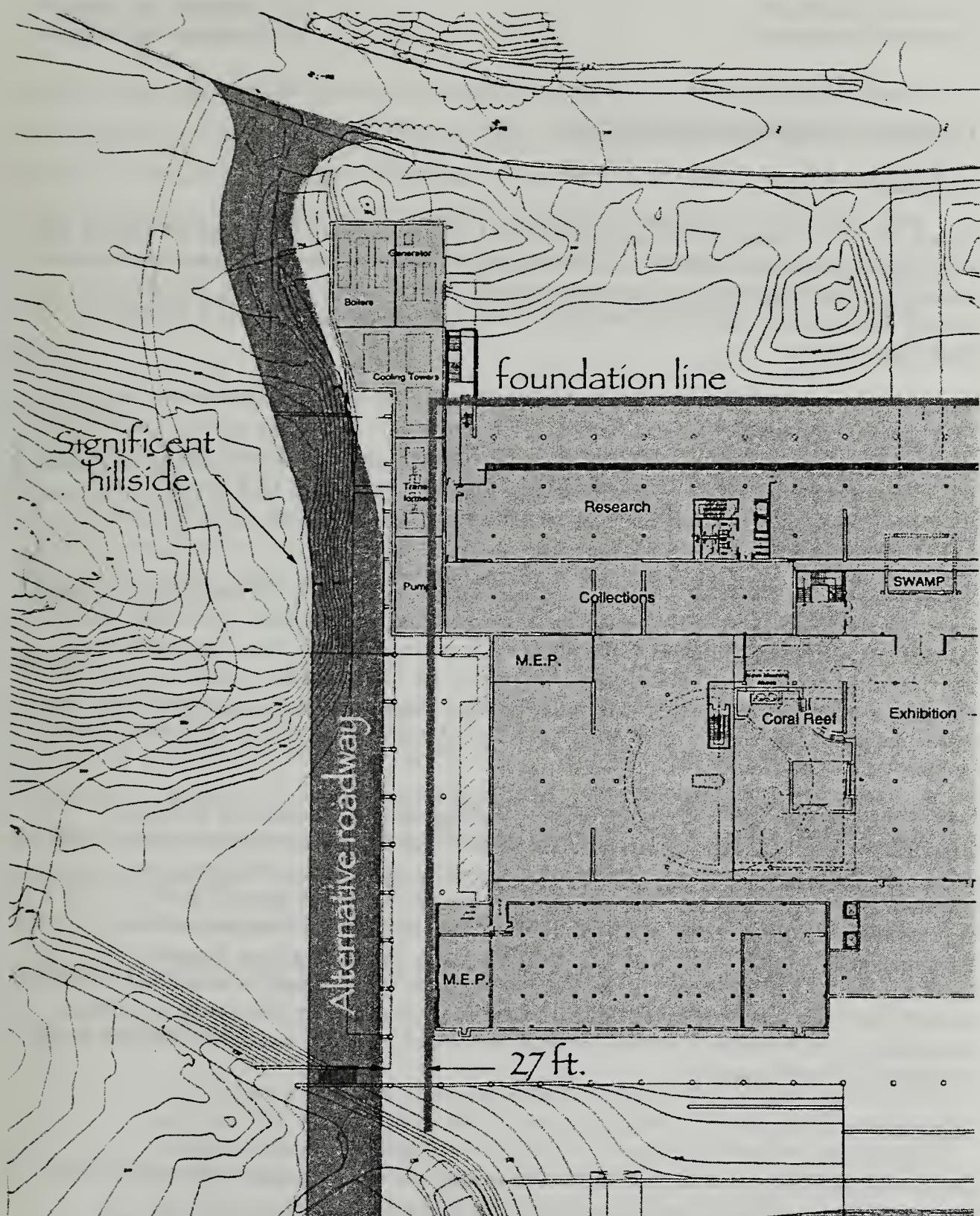
Comment

Page 170 - Visual Resources - Mitigation Measure #5 should apply to the project as a whole as opposed to just the construction in connection with the collections growth program and language should be revised to indicate that the would provide as part of its subsequent project plans submittal, a detailed GRADING, EXCAVATION TREE PROTECTION AND landscaping plan. ..." (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

Chapter IV, Mitigation Measures, DEIR p. 170, and Summary, DEIR p. S-27, include Improvement Measure 5 for visual quality. (An Improvement Measure would reduce or avoid an environmental effect that would not otherwise be a significant adverse effect; the DEIR did not identify significant adverse effects on visual quality.) The measure is revised to read as follows:

5. ~~In connection with the collections growth program, the~~ The project sponsor would provide as part of its subsequent project plans submittals, a detailed grading, excavation, tree protection, and landscaping plan which further demonstrates, to the satisfaction of the Recreation and Park Department, that construction activities will retain the important landscape elements, including where feasible important mature trees.



IMPACTS OF DISPLACEMENT OF ALTERNATIVE
RIGHT OF WAY BY ACADEMY PROJECT

CONSTRUCTION PHASE IMPACTS

Comments

Page S-26 – Construction - The discussion should include associated construction impacts and coordination issues associated with the overlapping of construction of the Music Concourse surface and landscape improvement project as they relate to traffic, parking, construction staging, loading, etc. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

The disruption of the Music Concourse area due to the construction of three major projects (deYoung, Concourse Garage and Academy) has not been studied cumulatively. There will be some overlap. Routes that may become de facto alternate routes for through-Park traffic have not been laid out or analyzed. Thus, the impact on other areas of the Park not currently impacted by through-Park traffic from such a traffic shift is not known. (*Jennifer Clary, President, San Francisco Tomorrow*)

Though neither the Concourse Authority garage nor the Academy DEIR has discussed whether transit or auto traffic will be routed across the park during construction, it will most likely be necessary to designate Middle Drive[East] as the most logical route; thus, any construction activities there would have major impacts on transit and vehicle traffic. Phased construction of the Garage could allow shifting of all traffic between Tea Garden and Concourse Drives, but this is not addressed. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

We're talking about the Academy of Sciences building here in Golden Gate Park that's proposed to be built. I notice it's approximately the same size as the existing building, very large, 153 yards approximately. One of my comments relates to the scheduling. The scheduling is discussed in the EIR. We all know that there is an art museum under construction across the street. We certainly don't need to have two museums under construction at the same time. I always thought it was better to save these large set of buildings for the next generation of builders. It might be better. I think it would be better if we waited four to six years and saved this particular project for another generation of builders. Certainly we don't need to have two building projects of this large magnitude going on at the same time. (*Roger Branden*)

Response

Section III. B, Transportation, pp. 65-67, discusses construction period traffic effects of the Academy project, as well as overlap with construction activities of other projects, and describes the process for coordination. As is customary, details regarding construction coordination would be provided through that process once construction schedules are established. Construction at the Academy site would not require road closure or rerouting of

traffic. Construction of the Underground Parking Facility, as noted on DEIR p.67, would restrict access to Academy Drive in 2003 and 2004. During construction of the Underground Parking Facility, at least one lane of Kennedy Drive would remain open. Tea Garden Drive and Academy Drive would be closed for periods, and through traffic would use other Park roadways, including Crossover Drive, and King Drive to Middle Drive East to Bowling Green Drive to Kennedy Drive. See also Response on p. C&R-46 regarding construction staging plans.

Comment

How will the pedestrian tunnels be treated during construction? Will they remain open during construction? They will be the only cross-Park and cross-Concourse pedestrian access that avoids confrontation with dangerous equipment and blockage by stacks of materials. If the construction impacts were thoroughly thought out, there would be a plan for both pedestrian and vehicular access during construction, but that is not the case, if evidence is this EIR.
(Jennifer Clary)

Response

The Academy project construction would not affect access to the pedestrian tunnels. During construction of the Underground Parking Facility, the pedestrian tunnels would be closed and there would be temporary routes for pedestrian and bicyclists around the Concourse area; the specific routes have not been established. Weekend construction is not anticipated. Chapter IV, Mitigation Measures, DEIR p. 168, and Chapter I, Summary, DEIR p. S-25, Improvement Measure 2, presents the steps that would be taken to minimize construction traffic impacts. That measure is revised as noted below:

Construction

2. Any construction traffic occurring between 7:00 and 9:00 AM or between 3:30 and 6:00 PM on weekdays would coincide with peak commute traffic and could temporarily impede traffic and transit flow. However, since the project site is located within Golden Gate Park, the potential disruption to commute traffic would be minimal. Conversely, construction activities that may occur on weekends could affect the recreational streets adjacent to the project site. As such, construction activities on weekends should be limited, if possible.

The Project Sponsor and construction contractor(s) shall meet with the Traffic Engineering Division of the Department of Parking and Traffic (DPT), the Recreation and Park Department, the Fire Department, MUNI and the Planning

Department to determine feasible traffic mitigation measures to reduce any traffic congestion, transit disruption and pedestrian circulation impacts during construction of the CAS. The temporary parking demand by construction workers would need to be met on-site or within other off-site parking facilities. The contractor would need to determine the location of an off-site parking facility for construction workers during the construction period if adequate on-street parking was not available.

Since construction of the CAS may overlap with construction of the New deYoung and the construction of the planned Underground Parking Facility, the construction contractor(s) for each project shall coordinate their construction schedules and activities to avoid conflicts. In addition, it may be possible to coordinate deliveries and hauling between the projects to minimize the number of trucks destined to and from the projects site each day. Furthermore, it may be possible to share construction worker parking locations, either off-site or within the Underground Parking Facility after its construction.

The construction contractor for each project should work with the various City departments (including the Planning Department, the Recreation and Park Department, MUNI, DPT and DPW) to develop a detailed and coordinating plan to address construction vehicle routing, traffic control, pedestrian walks and transit stop relocation.

Comments

Page S-12 Construction Impacts - The DEIR should include a discussion on transportation plans and hauling routes, construction area signage, restoration of pavement, utilities, traffic control devices and other park features that may be damaged due to construction traffic. If preparation of transportation plans and hauling routes cannot be prepared in conjunction with the DEIR, please indicate a process for how this plan can be reviewed and implemented.
(Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department)

CONSTRUCTION IMPACTS NOT ADEQUATELY CONSIDERED - The DEIR proposes that all construction staging of the Academy project will take place within the construction area. But since the construction area is tightly bounded by the Shakespeare Garden on the west, a substantial hillside on the east, and Middle and Concourse Drives on the south and north respectively, this is highly doubtful. For example, the deYoung's new structure is significantly smaller than the proposed Academy project, has considerably more space for staging than will be available to the Academy, but has nevertheless needed to place trailers along JFK, displacing pedestrian pathways. Additionally, the proposed Concourse Authority garage project will preclude use of Concourse Drive, requiring all construction access to be from Middle Drive. *(Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park)*

Construction Impacts on the Park. Construction Impacts on Golden Gate Park have not been evaluated adequately.

Where will the materials and construction equipment staging be located? With these three projects having somewhat overlapping construction periods, will the Music Concourse be free from parking of vehicles and staging of materials? (*Jennifer Clary, President, San Francisco Tomorrow*)

Response

The Response on p. C&R-43 describes the process for completing construction staging plans. The following additional information is available at this time: As requested by the Recreation and Park Department, all staging of materials, equipment and personnel would be on the Academy site. The trailers for site personnel would be staged along Middle Drive East, probably along the sidewalks with pedestrian traffic routed around them (similar to the New deYoung Museum's construction trailers). After demolition, there would be surface area available on the west side of the Academy for material and equipment storage. Some storage might also occur on the east side of the site. Access to the site would be from Middle Drive East. Material deliveries would generally be to the site from the two correct access points on Middle Drive East. Once on site, the trucks would be offloaded and material stored or directly hoisted and put in place by the tower cranes. The tower cranes would place material at the north side of the site. Academy Drive would not be required for material placement or on site access. Academy Drive would be closed during construction of the Underground Parking Facility.

See also Response on p. C&R-44, regarding mitigation of construction traffic effects.

Comments

Page 168 - Improvement Measures as Part of the Project - Construction - The DEIR states that temporary parking demand by construction workers would need to be met on-site or within other off-site parking facilities. The DEIR however fails to show how the parking demand will be met on-site, and does not identify potential off-site parking facilities that would accommodate anticipated construction workers. Further, the DEIR fails to mention that there will be overlap of construction worker parking for the Music Concourse project. Construction worker parking within the park must be analyzed in the final EIR to avoid impacts on the park during construction. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

Section III.B, Transportation, DEIR pp. 66-67, discusses construction parking:

Construction workers would cause a temporary parking demand, which would need to be addressed in coordination planning. The peak parking demand would occur during the interior buildout phase, when there would be a maximum parking demand for up to 200 spaces. Carpooling or transit use by construction workers would reduce the maximum parking demand. Although the CAS would not be providing any construction worker parking, there is anticipated to be sufficient on-street parking available within the Music Concourse area, on Kennedy Drive and on King Drive. Since construction activities would be limited to weekdays, the parking demand from construction workers would not substantially affect parking conditions on weekends, but may affect parking conditions in the nearby neighborhood or for other Golden Gate Park attractions on weekdays. While the CAS is closed for reconstruction, additional parking for construction workers would be available in the Park because visitors to the Concourse area would likely decline.

Additional construction worker parking demand related to the Underground Parking Facility construction would similarly be limited to weekdays. These would be expected during periods when both the New deYoung Museum and the Academy would be under construction. Visitors would be reduced, and parking would be available for construction workers. In addition, the CAS and the Recreation and Park Department are reviewing options and would identify a location for construction worker parking that would minimize effects on other Park users.

Comments

Page S-25 - Improvement Measures As Part of the Project - Construction - While the disruption to commute traffic due to construction traffic would be minimal, disruption to vehicular traffic and pedestrian circulation of recreational users and visitors to nearby attractions during the week and during peak weekend times and should be addressed in the DEIR.

Construction activities would also be significant when there are special weekend events scheduled at the park such as the Bluegrass Festival, Bay to Breakers, etc..., which attracts tens of thousands of visitors. We strongly recommend that construction activities should be prohibited during special large events that are scheduled in the Park. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

Chapter IV, Mitigation Measures, Improvement Measure 2, DEIR p. 168, includes measures to limit disruption to commuter traffic, and recommends limited construction activities on weekends. It is not anticipated that Academy construction would include weekend activities. This would avoid periods when large special events typically are held in the Park, such as Bay to Breakers.

Comments

Will the Music Concourse be open to the public during the construction period? How will the Band shell area be safeguarded? (*Jennifer Clary, President, San Francisco Tomorrow*)

Page 171 - Geology – Construction - The project does not provide any specific mitigation to protect historically significant structures, such as the Spreckels Music Temple in the event of pile driving or dewatering. The environmental document should provide specific language to include a mitigation measure to provide a vibration monitoring device, exterior structural investigation and post-construction exterior structural investigation to ensure that no damage is incurred to the Music Temple. (*Elizabeth Goldstein, General Manager, San Francisco Recreation and Park Department*)

Response

The Initial Study, Appendix A, pp. A-23 to A-24, discusses geology and groundwater conditions expected to be encountered on the Academy site. As noted on Appendix p. A-23, under “Geology/Topography,” “it is not anticipated that pile driving will be required for the facility. Some limited piles may be required for temporary shoring.” On p. A-24, under “Water,” states that excavation for the project would be a maximum of 36 feet; groundwater would not be expected to be encountered. However, the project would include Mitigation Measures 9 and 10, DEIR pp. 171-172, to ensure monitoring of nearby structures, including the Spreckels Temple of Music, to avoid potential settlement or damage if pile-driving or dewatering were necessary. As noted in Measure 10, any necessary monitoring would be implemented under the Department of Building Inspection.

See also Response on p. C&R-44 regarding access to the Concourse area during project construction.

SPECIAL EVENTS

Comments

CONCOURSE EVENTS NOT CONSIDERED

Nowhere in this document, nor in the GGPAC DEIR, is any consideration given to events taking place in the Concourse. This venue is of utmost importance to the Park and the Bay Area, as a formal gathering place for events. When dedicated in 1900, 75,000 attended and there was seating for 20,000.

The combined impacts of events in the Concourse should be studied in conjunction with impacts of events at the new deYoung Museum and the new CAS must be considered in any discussion. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Response

Special events at the Academy, as discussed on DEIR p. 68, typically occur in evening hours, would not substantially increase parking and traffic conditions with the proposed project, and would not be expected to affect area-wide parking and traffic conditions.

Operation of the proposed Underground Parking Facility during special events at the Academy or New deYoung Museum is discussed on DEIR p. 77. It is anticipated that Underground Parking Facility operations would be similar during Music Concourse events other than Academy and New deYoung Museum events.

Throughout the year, events are held in Golden Gate Park, such as the Bay to Breakers and Opera in the Park. For those events, the Recreation and Park Department develops plans to address the special needs and effects related to the events, including traffic restrictions, additional transit and shuttle service, and off-site parking facilities. It is anticipated that these transportation plans would be in effect for future events in the Music Concourse area with the proposed project.

CUMULATIVE EFFECTS

Comments

We also have been following for more than the last ten years all of these projects in the Golden Gate Park music concourse area, and we believe that there should have been a cumulative analysis through a comprehensive EIR and that the City Attorney's letter in no way

permits each institution to develop separate EIR's. In fact, to quote from the City Attorney's letter of October 10th, 2002, she says that under CEQA, each EIR should analyze the cumulative impacts of all projects in the area. We say that the cumulative impacts are not being analyzed. (*Mary Anne Miller, San Francisco Tomorrow*)

CUMULATIVE IMPACTS INADEQUATELY DISCUSSED - The City Attorney's letter, formulated in response to public controversy, stated that there was no need for a single comprehensive EIR for the whole Music Concourse area (in contravention of the sections of CEQA, which says there should). The City Attorney stated that the three EIRS would cumulatively express the impacts of the various projects; but that cannot be true, if one document ignores a key portion of another. To clearly inform decision makers for the Academy, however, the roadway which diverts through traffic from the Music Concourse and is an integral part of the garage EIR, needs to be clearly represented in the Academy EIR. Otherwise, this key portion of the garage EIR will not come to the attention of the Academy decision makers, especially since the Academy EIR enables multiple decisions for further future expansions of the Academy which would occur some ten years hence.

INCREASED TRAFFIC IN THE PARK - The traffic impacts of the three major projects proposed almost simultaneously in the Music Concourse area have been not been treated cumulatively. The Academy project would be an enormous public attraction which would create significant increases in traffic within the Park. Additional impacts would be added by the new deYoung Museum project. The provision of an entrance to the Garage just in front of the Academy and within the Concourse will impose additional circulation of vehicles in this area. The DEIR for the Academy does not adequately address these cumulative traffic impacts and no document exists which treats the traffic impacts cumulatively. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

Regarding transportation impacts on the Park, much has been said in the Concourse Authority Garage EIR about vehicular access, transit and circulation. Transportation Impacts on the Park will be many and interconnected. San Francisco Tomorrow, the Sierra Club, the Alliance for Golden Gate Park and many other community voices have registered their comments in the Concourse Garage EIR. This is why it is so important to know whether what is written in one EIR applies to all three projects, or, as the Stacy letter written for Dennis Herrera states (quoted above), should all documents repeat the convergent material regarding traffic and transportation, for example? (*Jennifer Clary, President, San Francisco Tomorrow*)

The proposed draft EIR does not comply with the California Code of Regulations, Title 14, Section 15165, as the draft submitted is for only a single program when the ultimate project development in the Music Concourse Area is comprised of numerous interrelated projects. Neither, the New deYoung Museum, nor their Underground Parking Garage, has been considered in relation to their combined impact on the design and functionality of the proposed CAS renovation and transit improvements.

In response to a request by the Alliance for Golden Gate Park for a CEQA compliant comprehensive EIR for the Underground Garage, Deputy City Attorney Kate Stacy stated last fall that, "The City has prepared or is in the process of preparing an EIR for each project. Under CEQA, each EIR should analyze the cumulative impacts of all the projects in the area.

There is no attempt to evade the CEQA requirement to prepare an EIR." [See attachment dated 10/10/02]

Since then, the draft EIRs for the deYoung Garage and the new CAS have been released and neither draft comprehensively studies the cumulative impacts of the New deYoung, the Garage and the Academy of Sciences, and their resulting impacts on traffic and transit operations throughout the City. Historic bike and pedestrian access in the Music Concourse are threatened by the CAS design, but should fully protected.

Both documents are inadequate. Any final EIR's based on these drafts can also be expected to be inadequate. Neither draft appears to be a product of the Planning Department, but rather, shameless, substandard contract work designed by EIP Associates to deliberately withhold from the public any serious discussion of negative environmental impacts. I personally asked EIP's Michael Rice at the last Concourse Authority meeting to point out the sections and pages of either draft EIR where any cumulative analysis of the Music Concourse Projects could be found. He was either unable or unwilling to respond. I hereby respectfully request this information from you. (*Stephen Willis, Save the Music Concourse*)

Response

The comments appear to address two issues: (1) whether CEQA Guidelines Section 15165 provides that a single EIR must be prepared for all of the projects in the Music Concourse Area; and (2) whether the Academy DEIR adequately considers cumulative impacts of the various Music Concourse projects.

The DEIR addresses the proposed project as required by CEQA Guidelines Section 15165. Section 15165 states:

Where individual projects are, or a phased project is, to be undertaken and where the total undertaking comprises a project with significant environment effect, the lead agency shall prepare a single program EIR for ultimate project as described in Section 15168. Where an individual project is a necessary precedent for action on a larger project, or commits the lead agency to a larger project, with significant environmental effect, an EIR must address itself to the scope of the larger project. Where one project is one of several similar projects of a public agency, but is not deemed a part of a larger undertaking or a larger project, the agency may prepare one EIR for all projects, or one for each project, but shall in either case comment upon the cumulative effect.

Section 15165 is intended to address "piece-mealing" which can occur when a larger project is treated as a series of discrete actions, thereby avoiding the requirement to prepare an EIR for each of its elements, or failing to acknowledge cumulative impacts of the various components. These cases generally arise in the context of large projects, often public works projects, that

are projected to occur in phases over a long period of time. In that context, an early action may lay the groundwork for the larger project or commit the public entity to future phases or actions which have not been adequately analyzed.

However, Section 15165 expressly recognizes that even if a project is one of several similar projects, the agency has discretion to prepare separate EIRs for each project, provided that it comments on any cumulative effects. The New deYoung Museum, the Academy of Sciences and the Concourse Parking Garage are three different and independent projects with three different sponsors, timelines and sources of funding. By way of example, the deYoung Museum is under the jurisdiction of the Fine Arts Museums of San Francisco Board of Trustees, the Underground Parking Facility is under the jurisdiction of the Golden Gate Park Concourse Authority, and the Academy of Sciences is under the jurisdiction of the California Academy of Sciences Board of Trustees. Neither the Academy of Sciences project nor the Underground Parking Facility is necessary precedent for the other nor commits the lead agency to action on the other project. As discussed below, the CAS EIR includes separate transportation analyses both with and without the Underground Parking Facility. The site plan for the Academy project provides flexibility as may be required to accommodate known components of the Concourse project, but is designed to proceed independently of any action on the GPCA projects.

CEQA does require an EIR to analyze the cumulative impacts of the project at issue along with other closely related past, present and reasonably foreseeable future projects. (See CEQA Guidelines Sections 15130, 15355.) However, CEQA does not require that multiple projects, which can proceed independently, be analyzed in one EIR. Here there has been no attempt to evade the EIR requirement, as each project is the subject of an EIR, which includes a comprehensive cumulative impacts analysis, as discussed below.

The Academy DEIR assesses cumulative impacts, as required by CEQA Guidelines Section 15130. Section 15130(a)(1) states, “a cumulative impact consists of an impact which is created or a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.” Section 15130(b)(1) further states that an adequate discussion of cumulative impacts requires,

(1) Either:

- (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
- (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

As discussed below, the DEIR evaluates cumulative effects of proposed projects that would cause related impacts in the Concourse and vicinity. Those projects include the under-construction New deYoung Museum and the proposed Golden Gate Park Concourse Authority projects, as well as changes analyzed in the *Golden Gate Park Master Plan EIR*, for the approved *Golden Gate Master Plan*. Consistent with the cited CEQA Guidelines, the cumulative analyses incorporate known past, present, and probable future projects.

The DEIR considers cumulative impacts in the areas of Transportation, Historic Resources, Visual Quality and Air Quality. Because the Academy project would reduce overall shadow, there is no potential for a cumulatively considerable contribution to shadow conditions in the Park. (See Section III.F, Shadow, DEIR pp. 152-162.)

DEIR Section III.B, Transportation, includes analysis of traffic conditions including completion of the New deYoung Museum and CAS, the “Baseline” condition. DEIR pp. 55-61 present Baseline and Baseline Plus Project conditions for traffic, parking and transit conditions and identifies adverse effects. DEIR pp. 72-74 summarizes the status of the GGPAC Phase II Underground Through Street, and its transportation effects, including the Baseline scenario accounting for the CAS project. DEIR p. 78 presents the basis of the year 2015 Cumulative conditions:

Separate 2015 Cumulative conditions were developed with and without the Underground Parking Facility since the reconfiguration of the Park roadways and the concentration of parking supply with the proposed facility would substantially affect the future assignment of vehicles within the Park and the surrounding streets. By 2015, it is anticipated that there would be changes to the existing transportation network in the

vicinity of the Music Concourse, which were included in the analysis of the 2015 Cumulative intersection operations.

The future 2015 Cumulative traffic volumes were based on the analysis conducted for the *Golden Gate Master Plan EIR*, and include growth rates to the Existing traffic volumes. A 1.0 percent per year increase in traffic volumes at the study intersections outside the Park, and a 0.5 percent per year increase at the study intersections within the Park were applied to the Existing traffic volumes to derive the future 2015 Cumulative volumes. Since these growth rates were applied to the existing intersection volumes, they would account for the additional vehicle trips generated by the New deYoung and the CAS. To account for the Underground Parking Facility (for the 2015 Cumulative with Underground Parking Facility scenario), the closure of Tenth Avenue and the removal of surface parking, adjustments were made to the traffic volumes to derive the 2015 Cumulative with Underground Parking Facility conditions.

In addition, the 2015 Cumulative conditions assume the changes to the existing transportation network in the vicinity of the Music Concourse as documented in the *Golden Gate Park Master Plan*, including the reconfiguration of the Kennedy/Kezar intersection, the closure of Waller Street and the closure of the Seventh Avenue entrance.

DEIR pp. 78-86 presents traffic and parking conditions for Year 2015, using growth factors developed for the *Golden Gate Park Master Plan EIR*, and includes scenarios with and without the Underground Parking Facility. That analysis uses the same methodology and assumptions as the GGPCA Draft EIR transportation analysis.

DEIR p. 81 discusses Year 2015 conditions with and without the Underground Parking Facility:

2015 Cumulative without Underground Parking Facility

During the Saturday midday peak hour, four of the 23 intersections would operate with unacceptable conditions (Park Presidio/Fulton, Fulton/Stanyan, King/Crossover, and Lincoln/Nineteenth), as compared to one intersection under Baseline and Baseline plus Project conditions (Fulton/Stanyan). During the Sunday midday peak hour, four of the 18 study intersections would operate with unacceptable conditions (Park Presidio/Fulton, Fulton/Arguello, Fulton/Stanyan and King/Crossover), as compared to one intersection under Baseline plus Project conditions (Fulton/Stanyan).

2015 Cumulative with Underground Parking Facility

During the Saturday midday peak hour, four of the 22 intersections would operate with unacceptable conditions (the same four intersections as with the 2015 Cumulative without Underground Parking Facility conditions). During the Sunday midday peak

hour, three of the 18 intersections would operate with unacceptable conditions (the same intersections as with the 2015 Cumulative without Underground Parking Facility conditions except the intersection of Fulton/Arguello).

DEIR Section III.C, Historic Resources, discusses cumulative effects of Music Concourse area projects on DEIR pp.119–121. That section addresses potential cumulative historic resource effects of the proposed Academy, the New deYoung Museum and the GGPAC Projects:

Proposed new construction would be generally compatible with the existing Park landscape in location, size, scale, and materials. The New deYoung Museum, the new CAS, and Phase I of the GGPAC Projects would avoid altering important Park landscape features such as trees, vegetation, gardens, topography, and circulation of the valley would be maintained. Finally, the deYoung Museum and CAS projects would maintain the important cultural use of the Music Concourse precinct. The individual compatibility of each project and the continuity of use in the valley suggests that the cumulative impact of the all three proposed or approved projects would not be substantial enough to adversely impact the historic significance of Golden Gate Park or the Music Concourse. Even if there were other significant impacts associated with the GGPAC Projects, because the CAS project would be consistent with the historic context, it would not contribute considerably to any such impacts. As a result, the proposed CAS would have a less-than-significant cumulative impact on the historic significance of the Music Concourse and the potential Golden Gate Park National Historic District.

DEIR Section III.D, Visual Quality, DEIR pp. 136–137, discusses cumulative visual quality effects of the GGPAC projects together with the CAS project and concludes that the projects would not significantly diminish the overall visual quality of the Park.

DEIR Section III.E, Air Quality, analyzes future Baseline and Year 2015 air quality effects, based on the traffic analysis. Table 15, DEIR p. 149, presents one-hour and eight-hour carbon monoxide concentrations modeled for Existing, Existing plus Project (including Baseline volumes), and 2015 Cumulative Plus traffic volumes. DEIR pp. 149–150, Cumulative Project Effects, reviews cumulative air quality effects, and concludes these effects would not be significant.

One comment refers to a concern expressed to the City Attorney that a single study for the cumulative impacts of all the related projects in the Music Concourse be prepared. The City Attorney's office responded, in a letter of October 10, 2002, that such a single study was not necessary under CEQA. This letter is attached on the following page.

Comments

BLOCKAGE OF THE ROADWAY TO DIVERT CONCOURSE THROUGH TRAFFIC -

The voters in approving Prop J approved the creation of a Pedestrian Oasis extending the breadth of the Concourse from the front door of the Academy of Science to the front door of the deYoung. To make this possible the Sierra Club proposed, and the Concourse Authority approved, development of a Phase II alternative-roadway passing east of the Academy of Science. This Phase II roadway is an integral part of the Proposed Project for the Concourse Garage, studied by the Commission at a public hearing earlier this year.

This roadway would divert through traffic from the Music Concourse area, reduce traffic impacts on the cultural center of the Park as required in Proposition J and assist in traffic calming for the whole eastern sector of Golden Gate Park. The roadway is mentioned in the text of the Academy DEIR, but completeness requires that there should also be a graphic representation of this roadway. Without a graphic representation, the contradiction between the placement of the roadway in the Garage EIR and the Academy infrastructure planned east of their footprint would not be evident. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

It must be remembered that the Garage project was not studied for the impacts of the Garage alone, but its construction, so disruptive to the Music Concourse area of the Park, was paired with the roadway as a strategy to conform with the sections of Proposition J which require amelioration of traffic impacts on Golden Gate Park. The public praised the diversionary roadway as being beneficial to the creation of a Pedestrian Oasis in the Music Concourse area but questioned in testimony before the Commission whether it would ever be accomplished except on paper, due to lack of funds. Thus the placement of the boiler and generator rooms would either make the proposed roadway permanently infeasible, or invalidate the basic premise of the Garage EIR project as proposed.

Curving this roadway farther to the east to avoid the boiler and generator rooms would cause a significant environmental impact to the Park by cutting further into the historic ridge line on the east and removing dozens of mature trees, many of them part of the historic oak woodlands.

Thus the Academy EIR must address the fact that the Academy intends to place major parts of its infrastructure in the roadway right-of-way, effectively negating the key portion of the Garage proposal which allows it to conform to Proposition J. (*Mary Anne Miller and Chris Duderstadt, Board of Directors for the Alliance of Golden Gate Park*)

IX. Comments and Responses
C. Comments and Responses

CITY AND COUNTY OF SAN FRANCISCO



DENNIS J. HERRERA
City Attorney

OFFICE OF THE CITY ATTORNEY

KATE HERRMANN STACY
DEPUTY CITY ATTORNEY

October 10, 2002

Alliance for Golden Gate Park
P.O. Box 170051
San Francisco, CA 94117-0051

Re: Projects in the Music Concourse Area of Golden Gate Park

Dear Ms. Miller and Messrs. Willis and Duderstadt:

The City Attorney has asked that I respond on his behalf to your recent letter expressing your view that one environmental impact report ("EIR") should be prepared for the three proposed projects in the Music Concourse Area in Golden Gate Park. While the California Environmental Quality Act ("CEQA") would not prohibit a decision to combine all three projects for analysis in one EIR, CEQA does not require the City to so combine the projects. CEQA requires the City to examine the cumulative effects of a proposed project in combination with other proposed projects in the area. The *Arivv Enterprises, Inc. v. South Valley Area Planning Comm'n* decision addressed a situation where a developer had evaded the requirement to prepare an EIR by submitting applications to construct 21 houses at different times, in essence "piecemealing" his project into smaller projects that could be exempted from the requirement to prepare an EIR under CEQA. In contrast, the three projects in the Music Concourse Area are distinct, independent projects with different project sponsors and schedules. One project could proceed quickly, while another could take years to complete. The City has prepared or is in the process of preparing an EIR for each project. Under CEQA, each EIR should analyze the cumulative impacts of all projects in the area. There is no attempt here to evade the CEQA requirement to prepare an EIR.

In San Francisco, the Environmental Review Officer has the authority to determine the level of appropriate environmental review for each project. I do not believe that a decision to prepare three separate EIRs, rather than one combined EIR, for the three separate projects in the Music Concourse Area violates CEQA.

Very truly yours,

DENNIS J. HERRERA
City Attorney

KATE H. STACY
Deputy City Attorney

cc: Paul Maltzer, Environmental Review Officer

CITY HALL • 1 DR. CARLTON B. GOODLET PLACE, ROOM 234 SAN FRANCISCO, CALIFORNIA 94102-0917
RECEPTION: (415) 554-4700 • FACSIMILE: (415) 554-4757

If you look at the EIR, you will see that there is a boiler room configuration over here on the lower level. Now, nowhere is the roadway presented in this document, but with the help of Gordon Chong, I have taken their drawing, and the blue is what they showed very faintly. They didn't reference it to me, but it's obvious that this would be their plan for that. Please understand that, per their plan, the roadway will be outside of the current roadway entirely. They propose to take that area for a promenade, and then the boiler room will be on the backside. Looking at it from the other direction, you will see that this entire hillside which has a stand of historic trees which is a wind break for the rhododendron grove and for a number of other areas in the park will be impacted. I really feel that this must be dealt with within this document, and I ask that you ask the Planning Department to put in references that show where the roadway would go in and what its impacts would actually physically be.

(*Christopher Duderstadt*)

Lack of Comprehensive EIR. Cumulative Impacts should be addressed in one comprehensive document. The letter of the City Attorney which stated that each separate EIR document "should analyze the cumulative impacts of all projects in the area" was written by Kate Stacy, Deputy City Attorney, for Dennis Herrera, dated October 10, 2002. In the following ways, the Academy EIR does not treat the issues cumulatively:

Phase II of the Proposed Project analyzed in the Concourse Authority garage EIR proposes a new roadway, built upon the sunken truck and vehicle access presently used for delivery on the southeastern side of the Academy. This alternative roadway would divert vehicular through traffic from the rim of the Music Concourse bowl to Middle Drive. Although this route is treated as part of the Proposed Project in the Garage EIR, it is not even mentioned in the Academy EIR and is not shown on any of the graphics. (*Jennifer Clary, President, San Francisco Tomorrow*)

The impacts of the academy would not allow Phase II of the garage project to go forward.

Now, again, if you remember, there was a Phase I, that is the construction of the garage. We heard this several months ago, and there was a Phase II, which was the diversionary roadway which would go -- would take the through traffic past the side of the academy. Now, the academy does not address this. It gives lip service to the fact that such a thing was proposed. It doesn't show any graphic evidence. It doesn't show a plan view or a section view which allows you to see that there's major interference planned in the way of boiler rooms, infrastructure of generators and so on that would be under the ground right where the other EIR for the garage shows the diversionary road. Now, Chris Duderstadt, who will show you the graphics of that, will perhaps speak after me. I'm not sure. That's one of our major concerns, that when we said you shouldn't do separate EIR's, we were afraid you'd end up with things that were not congruent, and it has happened.

Anyway, we're counting on this roadway. We were promised the roadway at Phase II. If it can't go through, then we will continue to have the same traffic impacts that we have now in the park. (*Mary Anne Miller*)

The Sierra Club has one specific comment and request for the subject EIR:

The proposed site plan should have included an alternative to allow for a Pedestrian Oasis in the Concourse. This is covered in our comments to the Concourse EIR and could consist of the elimination of Academy Drive and the addition of a roadway along the east wall of the Academy. The Academy drawings should some preliminary planning of how to accommodate the Pedestrian Oasis because it is required by Prop 'J'. (*Howard Strassner, Chair Transportation Committee, Sierra Club San Francisco Group*)

Response

An Underground Through Street is part of Phase II analyzed in the GGPCA Projects DEIR. As noted in Project Description, p. 20 –21 of the Academy DEIR, the GGPCA projects are independent of the CAS project. The Golden Gate Park Concourse Authority would review the various components of projects in its jurisdiction in relation to the requirements of Proposition J, including implementing a “pedestrian oasis” in the Music Concourse. The Underground Through Street would not necessarily be considered a prerequisite for a pedestrian oasis.

GGPCA Projects DEIR, Figure 4: Proposed Site Plan with Phase II, illustrates the alignment of the Underground Through Street with the ramp at Middle Drive East near the Academy. That alignment accounts for the Academy project, including basement-level utilities at the southeast corner of the Academy site. Figure 6: Floor Plan Basement Level B-1, Academy DEIR p. 10, illustrates this utility space. The Academy project as proposed would accommodate the right of way for, and would not conflict with development of the Underground Through Street.

Section III.B, Transportation, DEIR pp. 72–74, summarizes the status of the GGPCA Phase II Underground Through Street, and its transportation effects, including the Baseline scenario accounting for the CAS project.

The GGPCA Projects DEIR also includes Alternative E: Surface Through Street, GGPCA Projects DEIR pp. 218 –221. The alignment of the surface road from Kennedy Drive to Middle Drive East would be immediately adjacent to the east side of the new Academy. As shown in GGPCA Projects DEIR, Figure 27, DEIR p. 219, the road would avoid the basement-level utility area proposed with the new Academy. The Academy indicated in its February 4, 2003 comment letter on the GGPCA Projects DEIR that, although a surface roadway could physically be accommodated along the same alignment as proposed for the underground tunnel, it would be inconsistent with the Academy’s objectives in terms of issues

such as design, visual, land use and noise impacts. The surface roadway alignment would run immediately adjacent to a glass expanse of the new Academy and visual connections to the Rhododendron Dell. Transparency between the east/west and north/south facades is intended to connect the CAS visitor to the natural landscape, and allow views from the Park into the new Academy. Because of the constrained site conditions, the Alternative E surface through street would be close to the Academy facility and at the same level as the exhibit floor.

COMMENTS ON THE PROJECT

Comments

Thank you for including the California Department of Transportation in the environmental review process for the proposed project. We have examined the above-referenced document and are satisfied that the project will not have a significant impact to State highway facilities.
(Timothy Sable, District Branch Chief, California Department of Transportation)

As a final comment, I realize that the façade treatment for the proposed structure has not been finalized, but judging from the images that have been included in the DEIR, and from a purely aesthetic point-of-view, the design seems fairly disappointing, compared with the existing CAS complex. *(Michael Levin)*

Thank you for the opportunity to comment on the Draft Environmental Impact Report for the Academy of Sciences project 2002.0782E. The San Francisco Bicycle Coalition (SFBC) is very supportive of the building of the Academy of Sciences as it will help the Academy achieve its goal of environmental education and awareness. *(Leah Shahum, Executive Director, San Francisco Bicycle Coalition)*

I am a member of the community advisory group also for the academy, and I'm also an employee of Muni. One thing I'd like to say is I have been fortunate enough also to attend a lot of meetings and see the beautiful plans for the academy, which tempers the despair that I also feel when I get a behind the scenes look at the academy. I certainly think San Francisco deserves something more like the Boston Museum of Science instead of this like blue painted concrete type edifice.

From a transit standpoint, I really have to commend the academy. They have been great partners in transit first both with Muni and with the city and certainly with the region. They offer discounts for people who take public transit. They offer discounts for people who ride bicycles. They offer transit checks for their employees, and I think I have -- well, I know that they have presented their plans to Muni. We have been very excited about it, and they have made a commitment to work with us both currently and in the future to improve what we've got and kind of keep people pointed in that direction as they do now. *(Maggie Lynch)*

The plan calls for an underground tunnel below the streets on Tea Garden Drive and going through the park to this large parking structure which is proposed to be built. This

underground tunnel seems to be unwise to me, and I have talked with some members of the police department who consider it a potential security hazard. And they said that they would be opposed. This underground tunnel going through the park does not seem to be necessary at all, and we think it's something that needs to be rethought. (*Roger Branden*)

I am the executive vice president of the FDR Club. I also am president of the Access Appeals Commission. I too support the plan, and as a disabled senior citizen, I look forward to the no steps and also the design of having been able to drive and pick up at the entrance.' Right now there are areas in the academy that are not accessible. One is the swamp where the crocodiles are, and my grandchildren love to watch the crocodiles, and it's always been very difficult for me to go up and down the steps. And I also notice that those families who come with baby buggies, it's very difficult. They have to carry them up and carry them down. So I support this wholeheartedly, and I hope that Planning Commission will support it too. (*Alyce Brown*)

And the only other thing I would hope is that when the project is finished, and I have a biased first class of architecture, but the pictures Mr. -- I think it was Duderstadt had of the apple blossom tree with the classic building there, I hope it is as peaceful and as tranquil architecturally when the new building is there as that is, and I have every reason to believe it will be. (*Michael J. Antonini, San Francisco Planning Commission*)

Response

The preceding comments address the Academy project itself and no response is required.

Comment

I know I'm supposed to be saying technical things about this document, but I'm not really a technically oriented person. So all I want to do is respond to some of the things that people have been saying. And the first thing that occurs to me is when people start talking about a green garage, to me that's the same as the debate that's raging over organic food standards in this country where some people think it's okay to label something organic if it has nuclear sludge in it and hormones and genetically modified, you know, fish, tomatoes and that kind of thing. That's to me the exact same mentality that thinks an 800 car garage can possibly be green. Cars are the number one environmental disaster on the face of the planet right now. They're the elephant in the bedroom. And when we start trying to supply an access, we are no longer going to be able to find access in terms of cars. We have just fought this huge war in Iraq over this. The time has come, I think, or is coming very soon where we're just going to need as responsible citizens to find other means of access.

The second thing I'd like to say is I admire the Academy for providing transit discounts. I would admire that as long as there was transit into the park, which at this point there isn't. I mean if they're really trying to get more people on transit, they need to create transit. So I mean to me, yeah, I get a dollar discount, but there's no bus that I can take there. And it's just the whole focus of San Francisco is so wrong on this. I mean we're supposed to be a progressive city. We're supposed to be setting an example. We're supposed to be a shining beacon for the rest of the planet. And we've really covered that in so many ways, but this type

of thing where we're defining access, we're digging up a public park, we're giving land over to the use of automobiles and private institutions like this, it's just, it's something that's just not going to work in the long run. And it's very disturbing to me to see this whole thing go forward the way it is. And it's irresponsible to have an Environmental Impact Report that doesn't take these things more seriously. I mean that's their job. This is an Environmental Impact Report, and cars are a major environmental issue. And I just don't see that taken seriously enough in this document. (*Katherine Roberts, Alliance for Golden Gate Park, San Francisco Green Party*)

Response

The comment is noted. The comment addresses the merits of the Phase I Underground Parking Facility, proposed as part of the Golden Gate Park Concourse Authority projects. Chapter II, Project Description DEIR p. 20, notes that the Underground Parking Facility is not part of the Academy project, and is proceeding independently. See also Response on p. C&R-51, reviewing the cumulative analysis of the other projects in the Park, including transportation effects.

Section III.B, DEIR pp. 44-45 discusses the transit service near or in the Park, including six bus lines and one light rail line. DEIR pp. 60-61 identifies effects on transit of the proposed project.

APPENDIX A. INITIAL STUDY/EIR REQUIREMENT

**CALIFORNIA ACADEMY OF SCIENCES PROJECT
PRELIMINARY DRAFT INITIAL STUDY**
Case No. 2002.0782E

I. PROJECT DESCRIPTION

The California Academy of Sciences (CAS) is planning a rebuilding project on the site of the existing Academy facility in Golden Gate Park. The CAS now consists of 12 buildings, built between 1916 and 1969, with renovations in 1977 and 1990. The project would include demolition and new construction involving 11 buildings, and the removal of approximately 73 existing parking spaces. The project would restore Africa Hall in place. The entrance hall to the Steinhart Aquarium would be rebuilt, incorporating the entry's existing design elements, such as the barrel vault and columns. North American Hall would also be rebuilt in a manner consistent with the classical features of Africa Hall.

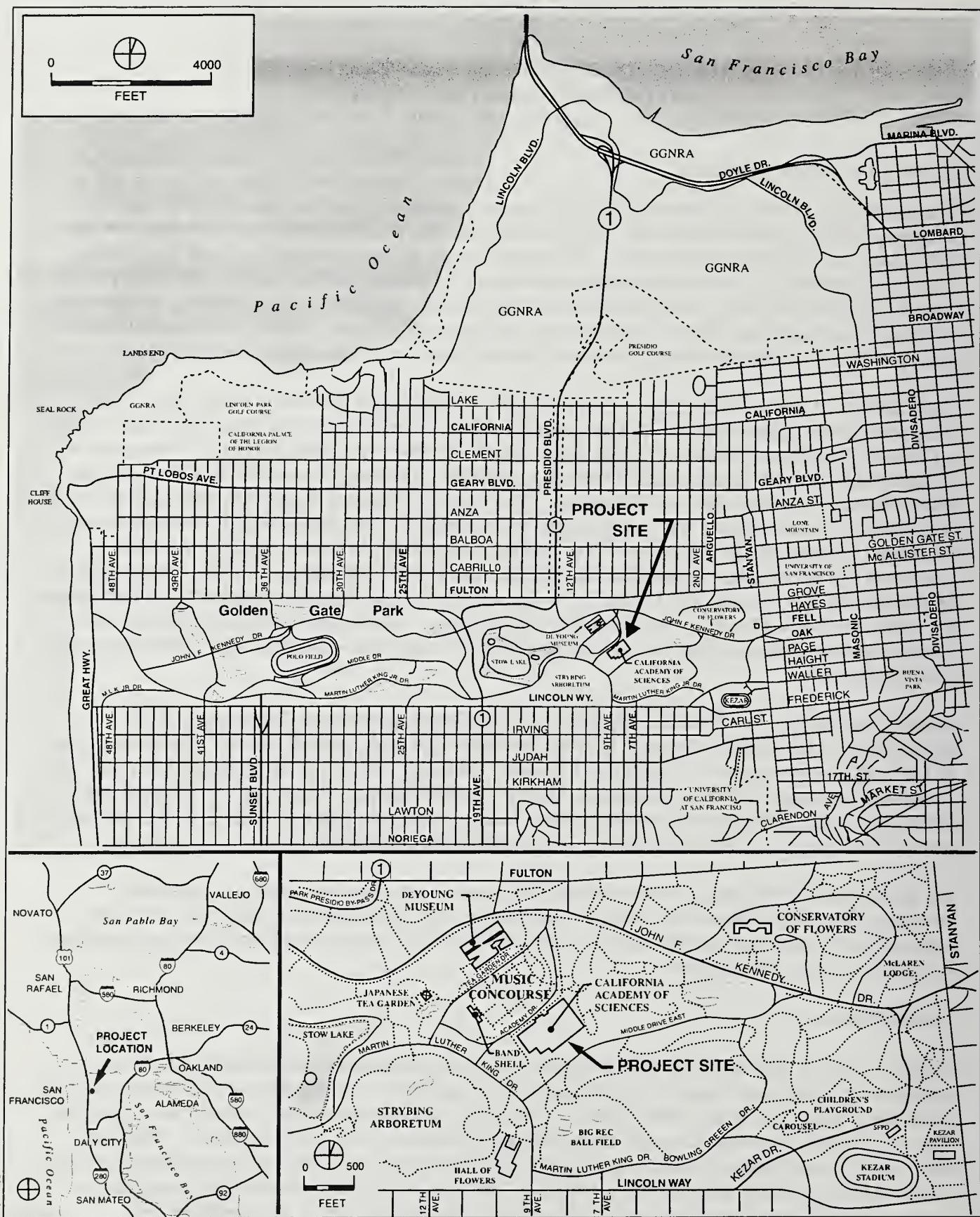
The California Academy of Sciences is in Golden Gate Park (Lot 1 of Assessor's Block 1700, which includes all of the approximately 1,017 acre park) along the easterly edge of the Music Concourse within a P (Public Use) district and an OS (Open Space) height and bulk district (See Figure 1). The parcel is owned by the City and County of San Francisco, and Golden Gate Park is under the jurisdiction of the San Francisco Recreation and Park Department. The Academy is managed and controlled exclusively by the Board of Trustees of the California Academy of Sciences. The Academy facility is accessible from Academy Drive and Middle Drive East. The Academy is bordered on the northwest by the Music Concourse (across Academy Drive East), on the southwest by the Shakespeare Garden, on the southeast by the Big Rec Ball Field (across Middle Drive East) and on the northeast by a meadow and woods within the park. The Music Concourse is a formal open public space characterized by regularly spaced trees, seating and other landscape improvements approximately ten feet below the grade of Academy Drive and Tea Garden Drive.

In 1995, the voters of San Francisco approved a \$29,245,000 bond measure (Proposition C) for improvement of the Steinhart facility. In 2000, the voters approved a second measure (Proposition B) of \$87,445,000 for improvement of the overall Academy facilities. The Academy retained a team of consultants, including architects, engineers, scientists, environmental and Building Code experts, and exhibit specialists, to further evaluate the existing facilities and design the new project, in coordination with other activities in the Concourse area. Those efforts have culminated in the proposed project.

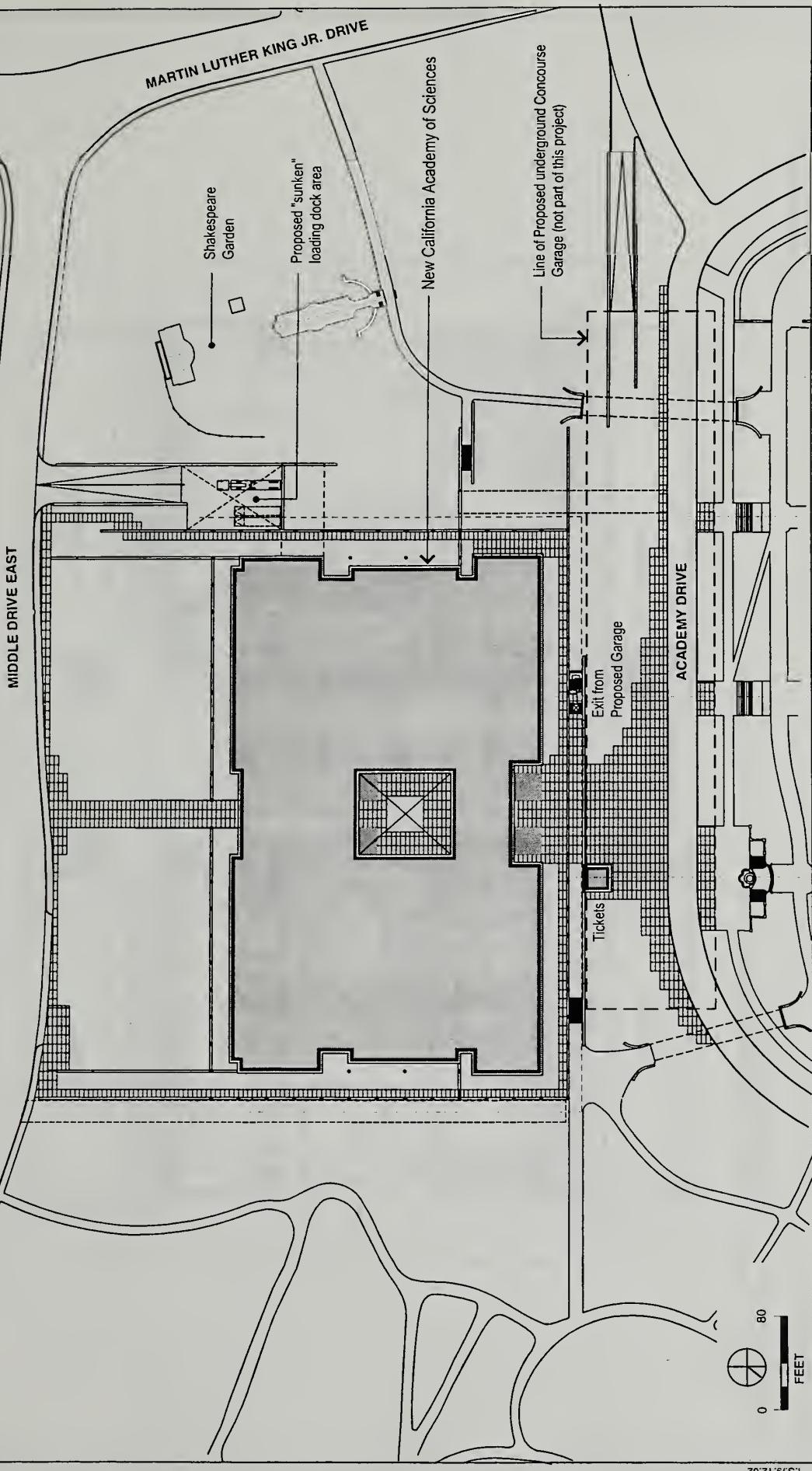
The primary goal of building a new Academy is to provide a safe, modern facility for exhibition, education, conservation, research, exploration and explanation of the natural world. The Academy believes that the new building will enable it to become one of the world's most innovative and prestigious scientific and cultural institutions.

Project Features

The new Academy facility would consist of three principal components organized around a central exhibition space and open piazza - all enclosed under a single roof. The facility would include three main levels above grade, two levels below grade, and a loading area at the southern portion of the project site. Figures 2 through 9 identify schematic floor plans and elevations of the proposed facility. The main features of the new Academy facility would be the main lobby and courtyard, public education and new exhibit spaces (including an aquarium, planetarium, and rainforest areas), natural history museum, environmental resource center, auditorium, classrooms, laboratories, research, collections, and administration space, restaurant and lunch room areas, a loading dock, approximately 15 service and Academy vehicle spaces and other museum-related uses.



SOURCE: EIP Associates



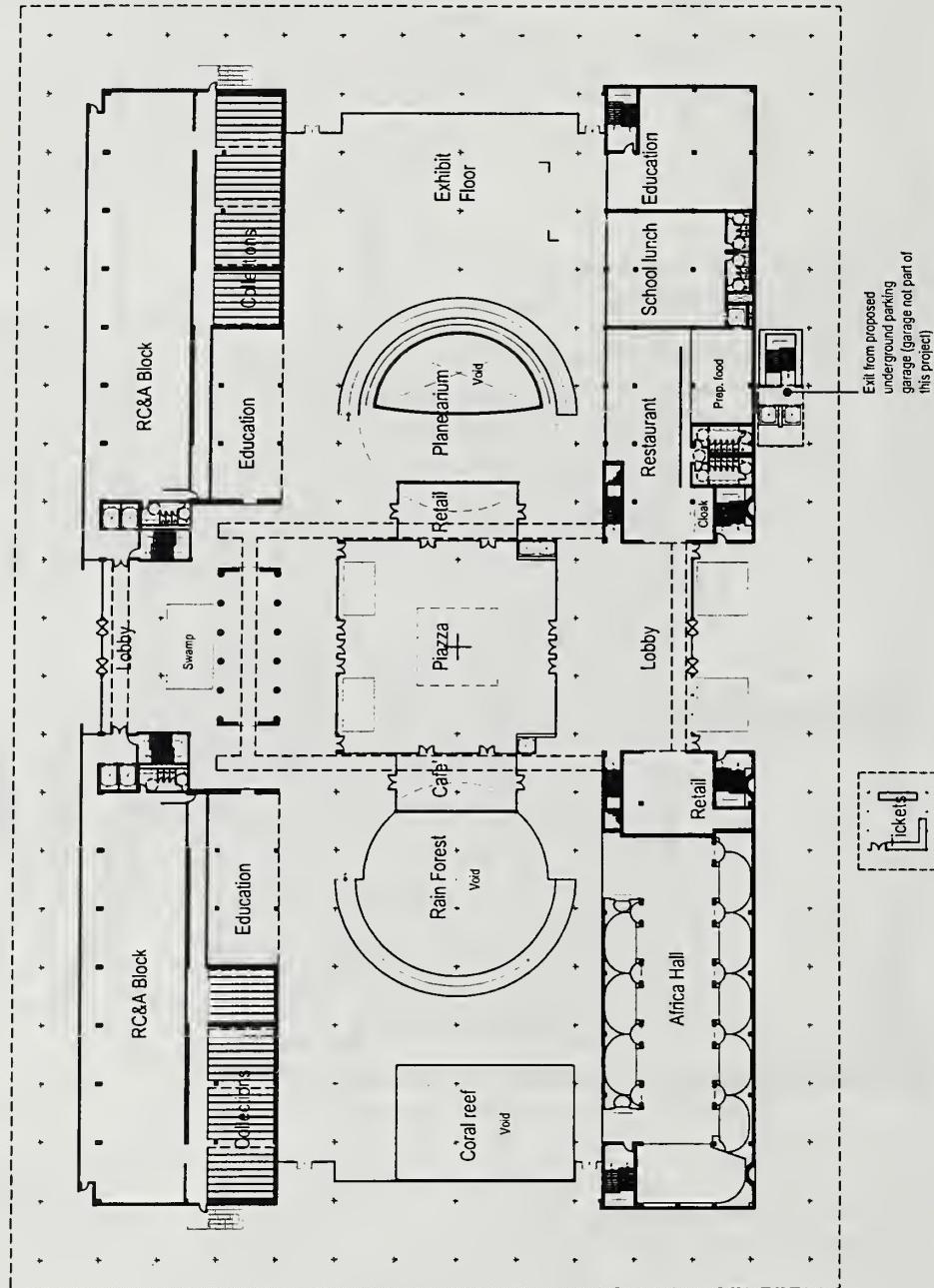
CALIFORNIA ACADEMY OF SCIENCES PROJECT

FIGURE 2: PROPOSED SITE PLAN

PRELIMINARY DRAFT--NOT REVIEWED FOR ACCURACY--SUBJECT TO REVISION

EIP

MIDDLE DRIVE EAST



ACADEMY DRIVE

1.S.9.11.02

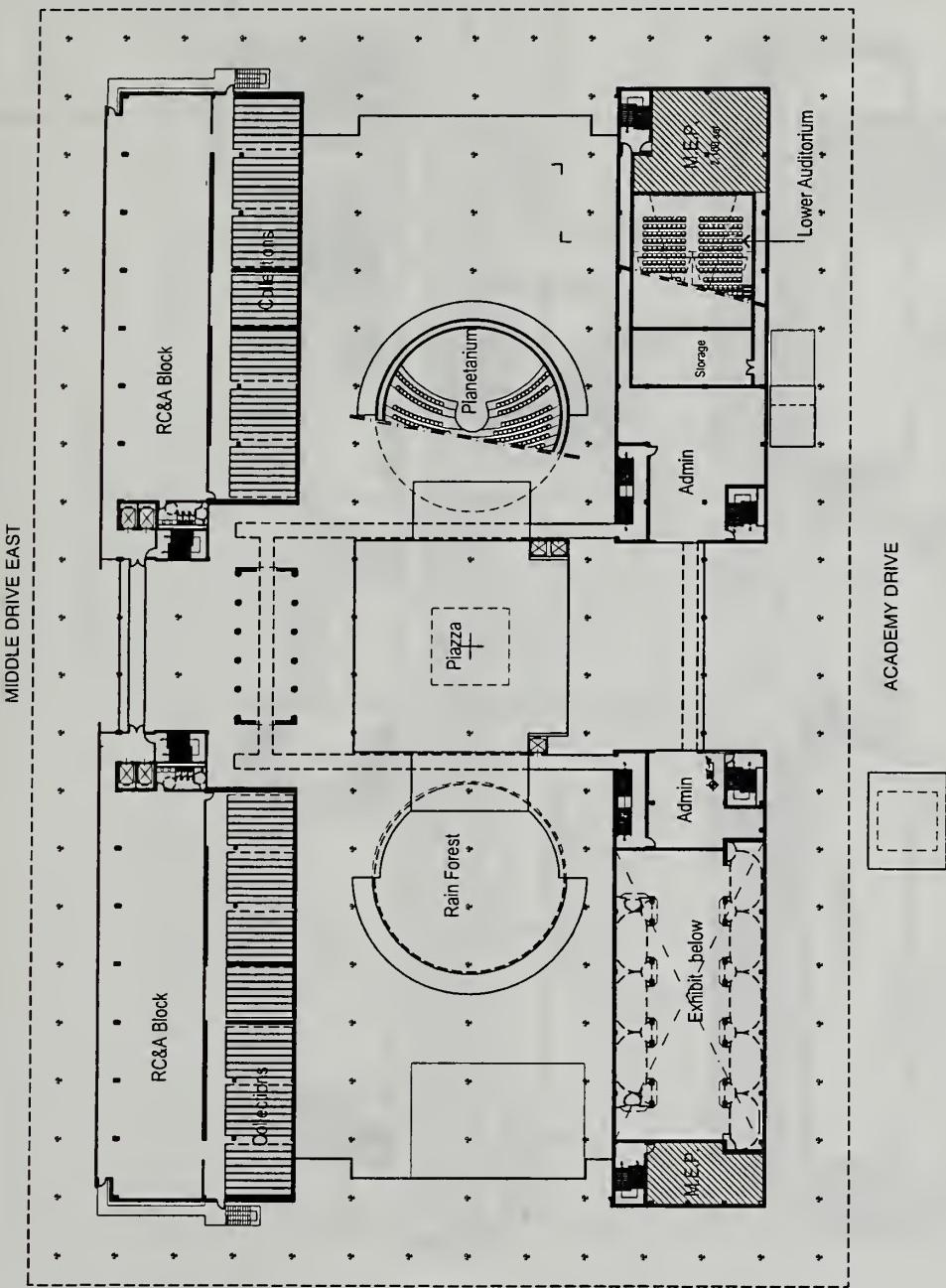


Note: RC&A Block = Research Collections and Administration
MEP = Mechanical Electrical and Plumbing

SOURCE: Gordon H. Chong & Partners

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 3: FLOOR PLAN GROUND LEVEL L1

PRELIMINARY DRAFT--NOT REVIEWED FOR ACCURACY--SUBJECT TO REVISION

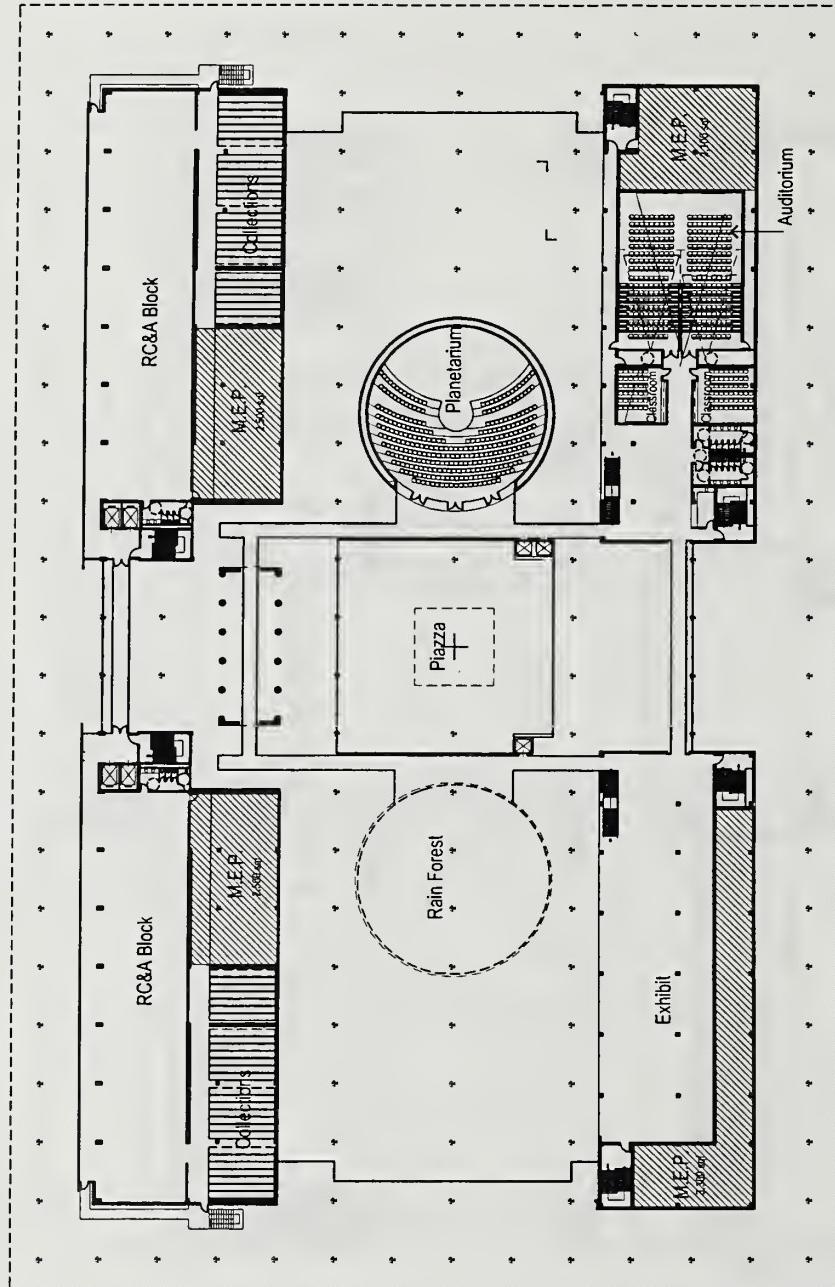


SOURCE: Gordon H. Chong & Partners
IS/9/12.02

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 4: FLOOR PLAN UPPER LEVEL L2
PRELIMINARY DRAFT--NOT REVIEWED FOR ACCURACY--SUBJECT TO REVISION

E.I.P.

MIDDLE DRIVE EAST



15/9/11/02

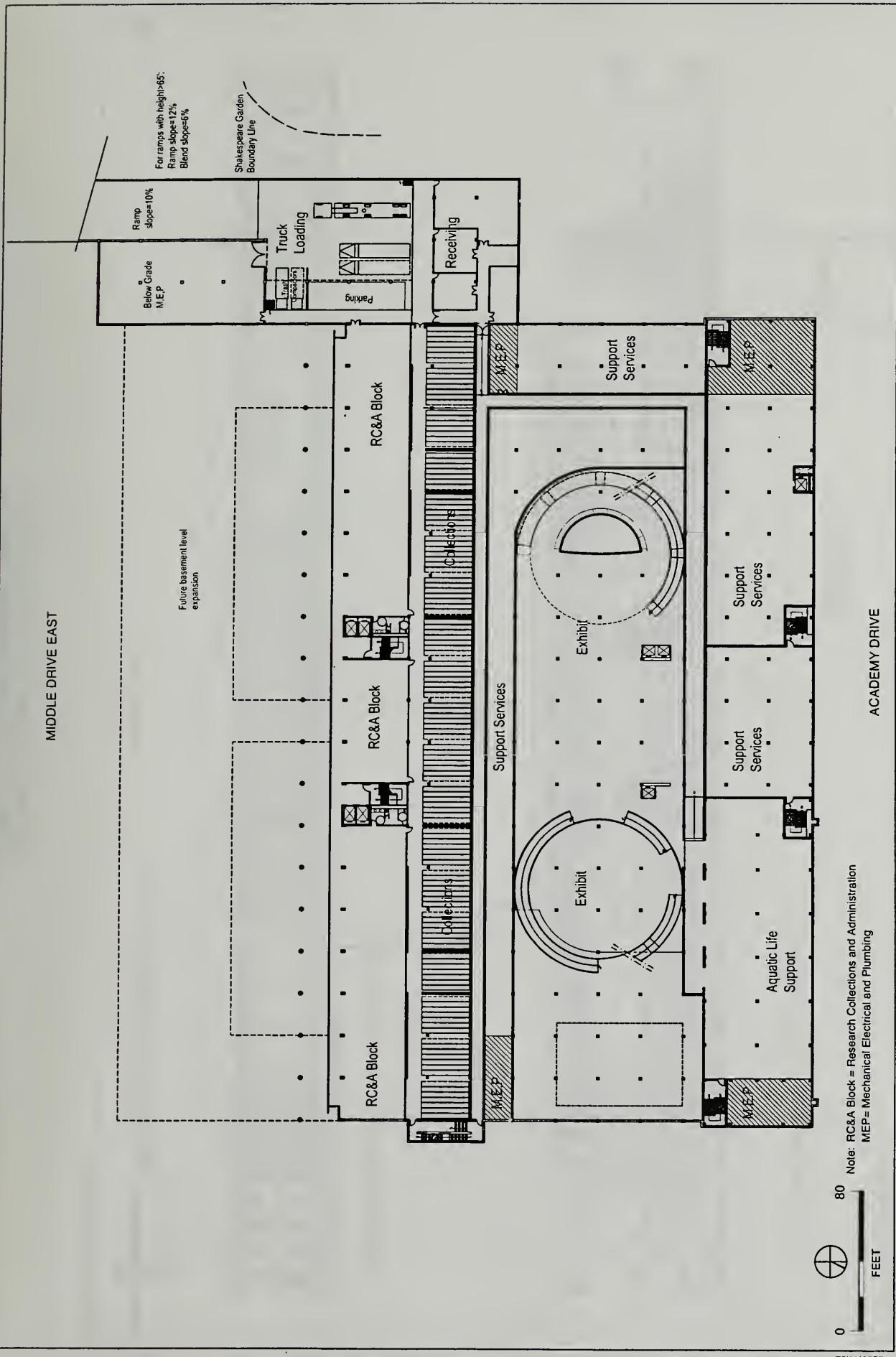
SOURCE: Gordon H. Chong & Partners

Note: RC&A Block = Research Collections and Administration
MEP= Mechanical Electrical and Plumbing

FIGURE 5: FLOOR PLAN UPPER LEVEL L3

CALIFORNIA ACADEMY OF SCIENCES PROJECT
PRELIMINARY DRAFT--NOT REVIEWED FOR ACCURACY--SUBJECT TO REVISION

EIP



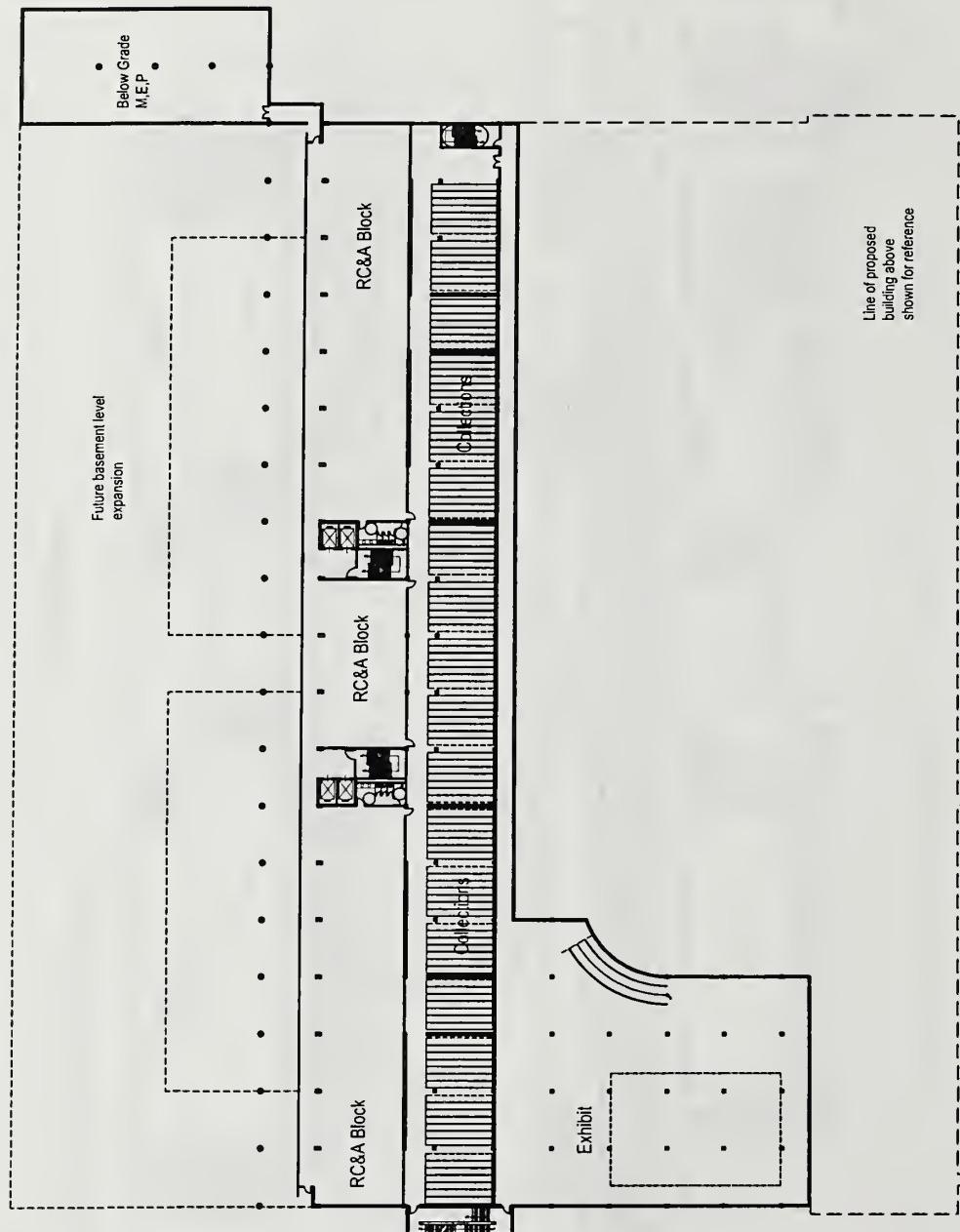
CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 6: FLOOR PLAN BASEMENT LEVEL B1

SOURCE: Gordon H. Chong & Partners

1.S/9.11.02

EHP

MIDDLE DRIVE EAST



15/9/11.02

SOURCE: Gordon H. Chong & Partners

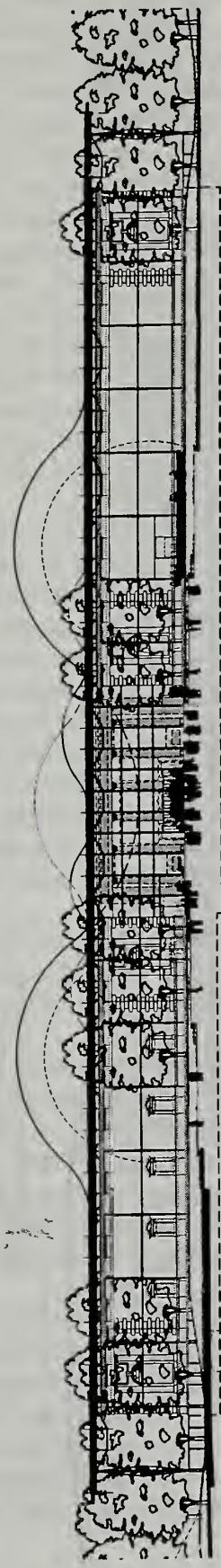
Note: RC&A Block = Research Collections and Administration
MEP= Mechanical Electrical and Plumbing

ACADEMY DRIVE

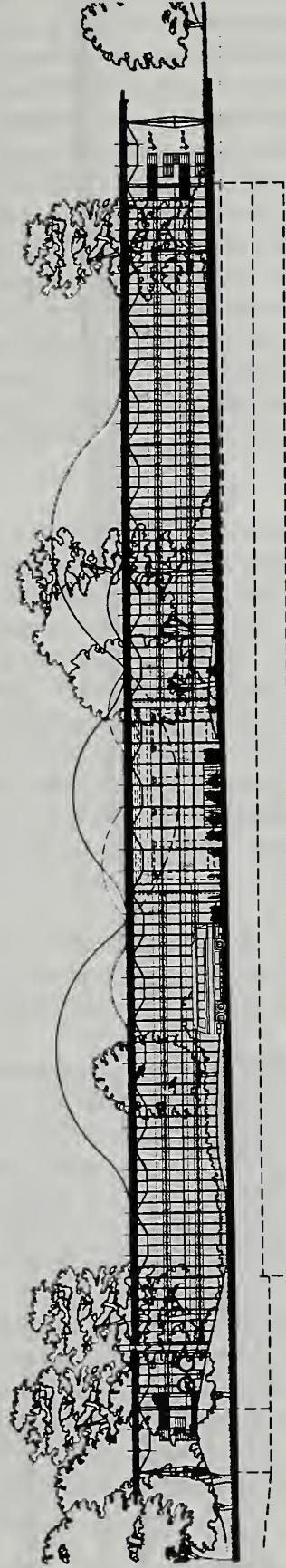
CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 7: FLOOR PLAN BASEMENT LEVEL B2

PRELIMINARY DRAFT--NOT REVIEWED FOR ACCURACY--SUBJECT TO REVISION

E.I.P.



NORTH ELEVATION (SEEN FROM MUSIC CONCOURSE)



SOUTH ELEVATION (SEEN FROM MIDDLE DRIVE EAST)



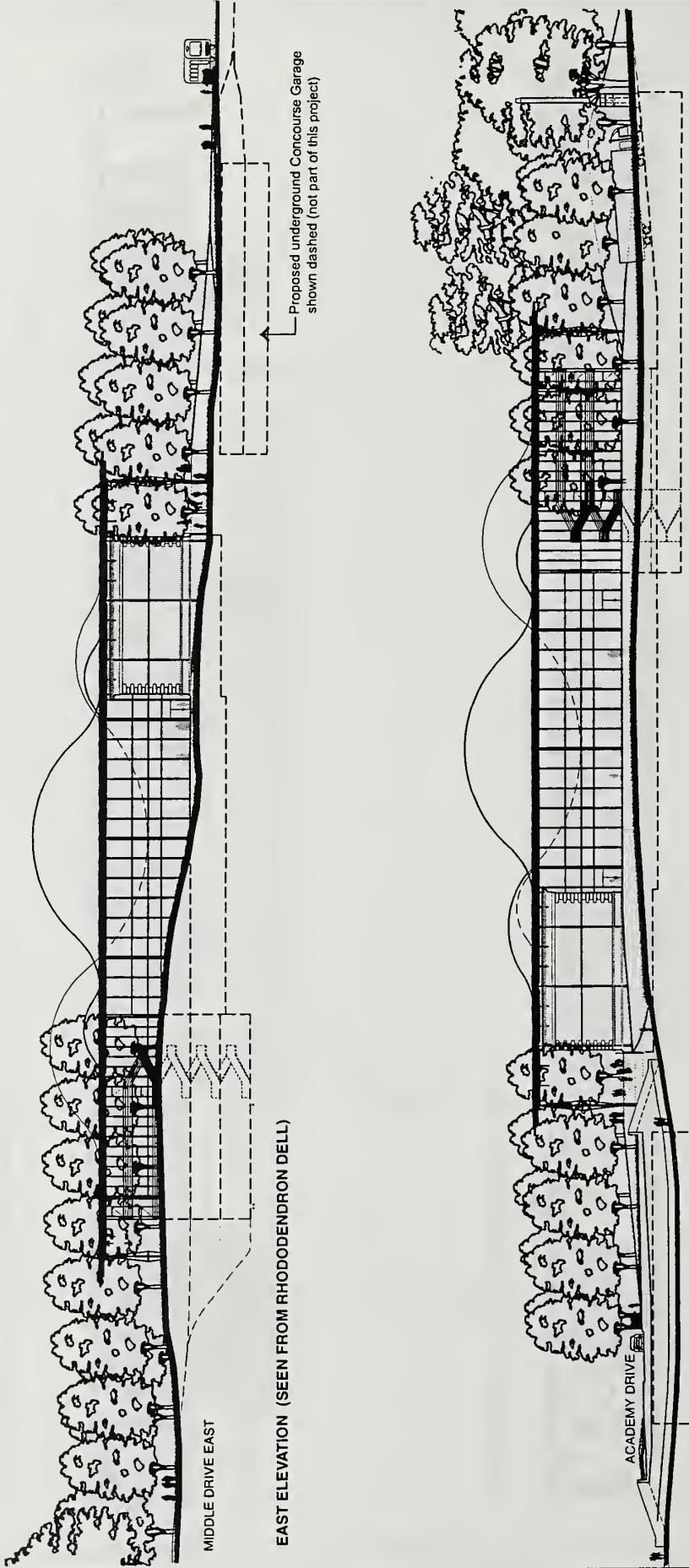
LS/9.12.02

SOURCE: Gordon H. Chong & Partners

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 8: NORTH AND SOUTH ELEVATIONS

PRELIMINARY DRAFT--NOT REVIEWED FOR ACCURACY--SUBJECT TO REVISION

EIP



SOURCE: Gordon H. Chong & Partners

1S7.9122

CALIFORNIA ACADEMY OF SCIENCES PROJECT
FIGURE 9: EAST AND WEST ELEVATIONS

PRELIMINARY DRAFT--NOT REVIEWED FOR ACCURACY--SUBJECT TO REVISION

The new Academy would be approximately 460 feet long and 280 feet wide, with the edges of the roof extending to approximately 520 feet long by 335 feet wide, and would feature a landscaped roof, the base height of which would be under 40 feet. Above the base, the landscaped roof would undulate to accommodate the Academy's major programmatic components beneath, with the two peak elements over the planetarium and rainforest exhibits reaching a height of about 67 feet, or approximately 13 feet beyond the highest existing point (Morrison Planetarium). These two peaks would be set back approximately 150 feet from the roof's edge along Academy Drive. The roof's shape would follow the contours of these central building components and exhibits and would be intended to read as an organic park-like element unifying the elements of the facility and integrating the structure with the park's adjacent landscaping. The roof would incorporate living plants and glass expanses, and provide limited opportunity for public access. Elements of the roof would also be visible from below, within the Academy, through the glass expanse features in the lobby and central courtyard. The roof would extend beyond the building's walls. The extension would be designed as a trellis, and would include openings to enable trees to grow through the overhang. The roof perimeter would be supported by a series of slender (approximately 8-inch diameter) steel columns. The ground beneath the extended roof would consist of landscaped park area.

Overall, compared to the existing facility, the new Academy would increase the floor area of the Academy's functions on a smaller footprint. The floor area would increase from approximately 350,000 square feet to approximately 380,000 square feet. The footprint would decrease from approximately 240,000 sq. ft. to approximately 205,000 sq. ft.¹ This increase in area on a smaller footprint is possible primarily because the newly-constructed space would include two basement levels. Mechanical space would be accommodated in the basement of the new Academy. Taking into account mechanical functions now in use on the roof of the existing Academy of Sciences buildings, which is not included in the existing floor area, the overall floor area of the new Academy would be similar to current conditions. The new Academy would be designed to accommodate space needs for approximately twenty years after opening. Should additional space be required at that time, it would be accommodated in an additional two-story basement expansion space approximately 80,000 sq. ft. in size, to be located below grade behind the Middle Drive East entrance, to the south of the main facility.

The Academy would retain its general location and orientation. The Academy Drive entrance would be shifted to the northeast to center the facility on the site. The new configuration would achieve a smaller footprint than the existing CAS, and provide an increased setback from the Shakespeare Garden area.

The facility would be served by a vehicle drop-off area and entrance lobby on Academy Drive, and another entrance and drop-off along Middle Drive East. Approximately 73 parking spaces would be removed, and space for about 15 new service and Academy vehicles would be provided. Loading would be provided on the southwest portion of the site, below grade, and adjacent to collections, research and administrative functions. This area would consist of three loading docks, connected by a corridor to the service elevator. These spaces would consolidate the existing loading functions, which currently consist of a series of small docks/loading door areas at the basement level and in the Aquarium area.

Excavation for the project would be required for full basement and partial sub-basement levels. Maximum depths are expected to reach 22 feet below grade at the sub-basement level in selected areas housing the aquarium exhibits and water storage tanks. The full basement level would average 14 feet below grade. Portions of the site would be excavated to approximately 36 feet below grade to remove the existing basement. The project would excavate approximately 40,000 cubic yards (cy) of soil; of the excavated soil, approximately 14,000 cy would be used as fill at the site and up to approximately 26,000 cy would either be reused in the park or hauled off the site.²

During construction activities, Academy functions, employees and collections would be temporarily relocated to an existing site or sites within the San Francisco Bay Area. The Academy's program calls for relocating its research and administrative functions and storing some collections and exhibits, while continuing to provide public programs and exhibits at a temporary facility during the rebuilding period.

Other Concourse Area Projects

The approved New de Young Museum project and the proposed Golden Gate Park Concourse Authority Projects under Proposition J are not part of the Academy of Sciences building, and are proceeding independently of the Academy of Sciences project. Unlike the deYoung Museum, the new Academy will not share a foundation wall with the proposed garage. However, coordination among the Academy of Sciences, the Golden Gate Park Concourse Authority, the deYoung Museum, and, the Recreation and Park Department and Commission, and other trustee and responsible agencies is currently occurring through an existing committee convened by the Office of the Architect. This coordination will continue during the implementation of the Academy of Sciences project. Cumulative construction-related impacts are discussed in this Initial Study. Cumulative transportation and air quality impacts will be analyzed in the EIR.

In addition, the Board of Supervisors is currently considering legislation to implement a partial closure of John F. Kennedy Drive on Saturdays. This proposal is not part of the Academy of Sciences project.

Project Schedule, Cost, Approvals and General Plan Policies

Project review and approval is expected to be complete in mid-2003. The development schedule includes closure of the Academy around the same time, followed by an approximately three month period of building hazardous materials abatement. Project staging and demolition would begin in approximately early 2004, and will continue for about nine months. Construction would begin in late 2004 and last about 27 months. Final exhibit work would continue for approximately four months, with the new Academy opening in approximately the Spring of 2008. If the expanded collections space were constructed in the future, the anticipated construction period would be approximately 18-24 months.

The project site is within a P (Public Use) zoning district, and within an OS (Open Space) Height and Bulk district. Permitted uses in a P zoning district include public structures of the city and other governmental agencies when in conformity with the San Francisco General Plan. There are no specific height and bulk limits in the OS height and bulk district. Height and bulk of buildings and structures are determined in accordance with the objectives and policies of the San Francisco General Plan. Approvals for various aspects of the project may be required from the Planning Commission, the Recreation and Park Commission, the Arts Commission, and the Board of Supervisors.

II. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

This Initial Study examines the Academy project to identify potential effects on the environment. On the basis of this study, project-specific effects that have been determined to be potentially significant relate to visual quality, transportation and parking, air quality and climate, and historic resources. These issues will be analyzed in an Environmental Impact Report (EIR). Land use and planning will be discussed in the EIR for informational purposes. Topics noted "TO BE DETERMINED" mean that discussion in the EIR will enable a determination whether or not there would be a significant impact.

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following effects of the Golden Gate Park Concourse Authority Projects have been determined to be either insignificant or to be mitigated through measures included in the project; population; utilities and public services; biology; geology and topography; water; energy and natural resources; noise; hazards; and cultural resources (archaeological resources). Those issues are discussed below and require no further environmental analysis in the EIR.

III. ENVIRONMENTAL EVALUATION CHECKLIST AND DISCUSSION

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	<u>Not Applicable</u>	<u>Discussed</u>
1. Discuss any variances, special authorizations, changes proposed to the City Planning Code or Zoning Map, if applicable.		<u>X</u>
*2. Discuss any conflicts with any other adopted environmental plans and goals of the City or Region, if applicable.		<u>X</u>

The project site is within a P (Public Use) zoning district, and within an OS (Open Space) Height and Bulk district. As a continuation of existing museum activities at this location in Golden Gate Park, the renovated Academy of Sciences would be compatible with existing land use controls, zoning, and would not be anticipated to require amendments to the *San Francisco General Plan* or amendments to zoning. There are no specific height and bulk limits within Open Space Height and Bulk districts. Height and bulk of buildings and structures in Open Space Districts are determined, as part of project approval, in accordance with the objectives, principles and policies and in conformity with the Master Plan (San Francisco Planning Code Section 290). The project would not conflict with the Golden Gate Park Master Plan, which was proposed to implement needed infrastructure and disabled access improvements in Golden Gate Park. The Golden Gate Park Master Plan EIR, certified in July 1998, and adoption of the Master Plan by the Recreation and Park Commission do not preclude responsible planning efforts regarding the future of cultural institutions, such as the Academy of Sciences, in Golden Gate Park. Information and analysis contained in the EIR for the Golden Gate Master Plan will be used and relied upon in the environmental review of the proposed project as appropriate. The project-related parking requirements would either be met by the proposed parking facility approved by the voters in Proposition J, or by an exception, or a variance to the Planning Code. The EIR will discuss necessary project approvals and will review the project in relation to the *General Plan* and City Planning Code.

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

B. ENVIRONMENTAL EFFECTS

1. Land Use. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Disrupt or divide the physical arrangement of an established community?	X		X
b. Have any substantial impact upon the existing character of the vicinity?	X		X

The project site is located in Golden Gate Park. The first California Academy of Sciences building was constructed on the site in 1916. The Academy of Sciences is surrounded by open space and other museum uses in the park; to the south, west, and east are landscaped open space, and the Music Concourse is north of the project site. The de Young Museum, now under construction, is north of the project site, across the Concourse, and the Hagiwara Japanese Tea Garden is northwest of the project site.

While the project would increase the overall floor area of the Academy of Sciences, as discussed above, the new CAS would continue activities on the site as they currently occur, on a slightly smaller footprint due to efficiencies and expanded basement areas. The project activity would be consistent with existing land uses on the site. The project would not disrupt or divide the physical arrangement of a community nor have a substantial impact upon the existing character of the vicinity. The project would not have a significant effect on land use; however, this topic will be discussed briefly in the EIR for informational purposes.

The scale of the project in relation to surrounding environment will be discussed in the EIR under the Visual Quality topic.

2. Visual Quality. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Have a substantial, demonstrable negative aesthetic effect?			<u>TO BE DETERMINED</u>
b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?			<u>TO BE DETERMINED</u>
c. Generate obtrusive light or glare substantially impacting other properties?	X		X

The proposed project would rebuild the Academy on the site of the existing Academy in Golden Gate Park. The proposed project would include demolition of 11 existing buildings, a total of approximately 311,400 sq. ft., ranging from approximately 34 to 55 feet in height, which compose the Academy of Sciences, the Steinhart Aquarium, and the Morrison Planetarium. The renovated Academy would feature a landscaped roof, the base height of which would be under 40 feet. Above the base, the landscaped roof would undulate to accommodate the Academy's major programmatic components beneath, with the two peak elements over the planetarium and rainforest exhibits reaching a height of about 67 feet, or approximately 13 feet beyond the highest existing point (Morrison Planetarium). These two peaks would be set back approximately 150 feet from the roof's edge along Academy Drive. Windows in the building's south façade will be solar glass and operable for natural light and ventilation. Windows enclosing the public exhibition area will be clear glass to provide as much transparency with the

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

surrounding park as feasible. The project would change views of the site from the Concourse, Tea Garden Drive, Middle Drive East, and Academy Drive, and would replace views of the existing Academy buildings. The new building would be visible from certain locations within Golden Gate Park. The EIR will identify key view points, including views of the project from the Music Concourse area and other areas within Golden Gate Park.

The project would comply with City Planning Commission Resolution 9212, which prohibits the use of mirrored or reflective glass. Therefore, mirrored glass would not be used, and the building would not result in glare affecting other properties. The EIR will, therefore, not discuss glare. The EIR will discuss the project's design, appearance, possible effects on views and its relation to the scale of surrounding development.

3. Population. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Induce substantial growth or concentration of population?	<u>X</u>		<u>X</u>
b. Displace a large number of people (involving either housing or employment)?		<u>X</u>	
c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	<u>X</u>		

The proposed project would rebuild the Academy on its current site. Demolition of 11 of 12 existing buildings on site and would temporarily displace the existing museums and approximately 435 employees. During construction activities, museum functions, employees and collections would be temporarily relocated to existing sites within the San Francisco Bay area.³ The employees would be temporarily dispersed to another location(s) depending on the functions they perform.

The proposed project would not be expected to add a significant number of employees to San Francisco's economy. The number of the professional, operations and educational employees at the site is not expected to increase substantially. The Academy currently has approximately 242 full-time employees and 194 part-time employees. When the Academy reopens, it is anticipated that these numbers will increase by approximately 20 employees, representing an increase of approximately 5%. The number of museum volunteers varies, but may range from 62 to 100 during peak periods. This amount is anticipated to be about 80 to 120 during peak periods at the new facility. It is not anticipated that any future expansion would require significant additional staffing, since the additional space would be used primarily for collections, although minimal additional volunteers might be added, bringing the total from about 120 to up to 150. Overall, the museum may add up to approximately 70 employees at full buildout including collection expansion space. This potential increase in employment would be small in the context of total employment in San Francisco.

The Academy's historic attendance has in recent years experienced a steady decline. In 2001, attendance was less than 800,000, with an average daily attendance of about 2,200, as compared to significantly higher numbers in the 1970's and 1980's. By way of example, attendance was closer to two million in 1977, the year the fish roundabout opened. Upon completion of the renovation program, the Academy anticipates a stabilized annual attendance figure of about 1.3 million.³ This is generally consistent with the 1.4 million projected attendance for the Academy assumed in the certified De Young EIR. The effect of increased numbers of visitors on transportation and related effects will be discussed in the EIR.

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

The project would not construct housing nor displace existing housing. Given the limited number of new employees anticipated, the proposed project would not create a substantial demand for new housing. Based on the above analysis, no significant physical environmental effects on housing demand or population would occur, and these issues require no further analysis in the EIR.

4. Transportation. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?			<u>TO BE DETERMINED</u>
b. Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?			<u>TO BE DETERMINED</u>
c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?		X	
d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?			<u>TO BE DETERMINED</u>

The museum uses could place increased demands on the local transportation system, including increased traffic, transit demand, and parking demand. The EIR will discuss project effects related to transportation and circulation, including intersection operations, transit demand, and impacts on pedestrian circulation, parking, and freight loading, as well as construction impacts. A transportation study by Wilbur Smith Associates is currently being prepared, and will be summarized in the traffic section of the EIR. The EIR will consider cumulative traffic effects both with and without the Concourse projects.

5. Noise. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Increase substantially the ambient noise levels for adjoining areas?	X		X
b. Violate Title 24 Noise Insulation Standards, if applicable?	X		X
c. Be substantially impacted by existing noise levels?	X		

The California Academy of Sciences, the New de Young Museum, the Hagiwara Japanese Tea Garden, and the Shakespeare Garden are identified in the Golden Gate Master Plan as sensitive noise receptors within Golden Gate Park. These outside areas designated for ceremonies and meditation, and museums and educational facilities may be affected by construction noise resulting from the project as demolition, excavation, and building construction would temporarily increase noise in the project area. The proposed project is not anticipated to require pile driving during construction, which would generate noise and possibly vibrations that could be considered an annoyance by occupants and park users in these nearby areas. Noise levels at receptors near the project site would depend on their distance from the source and on the presence or absence of noise barriers. Vibrations from the construction activities may be felt in adjacent buildings, which include museum, educational, and outdoor park uses. To mitigate any impacts

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

associated with noise generated from construction activities, the project would comply with regulations set forth in the San Francisco Noise Ordinance.

Construction, including demolition, foundation, structure, facade, and interior work would be expected to last about 27 months. Although construction noise could annoy nearby workers and visitors to Golden Gate Park and its facilities, particularly those adjacent to the project site, the impacts would be temporary and would generally be limited to a period of several months during which the foundations and exterior structural and facade elements would be built. Interior construction noise would be substantially reduced by the exterior walls. If temporary pile driving is required during project construction, implementation of the mitigation measure included as part of the project, as identified on p. 28, would ensure that such activity would be limited so as to result in the least disturbance to neighboring uses. Therefore, construction noise impacts would not be considered significant, and the EIR will not discuss them further.

Construction activities at the Music Concourse area related to the Golden Gate Park concourse Authority Projects and the New de Young Museum would also create noise effects. The Academy of Sciences project is proceeding independently of these projects. Cumulative noise effects of the Concourse projects are not considered significant given the different construction schedules of each project within the Music Concourse area of Golden Gate Park. While some construction schedules may overlap, the noise generated by these efforts would be temporary, and therefore, less-than-significant. This issue will not be discussed in the EIR

6. Air Quality / Climate. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?		X	X
*b. Expose sensitive receptors to substantial pollutant concentrations?			<u>TO BE DETERMINED</u>
c. Permeate its vicinity with objectionable odors?		X	
d. Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?			<u>TO BE DETERMINED</u>

Construction Emissions

During construction, air quality could potentially be affected for a short period. Heavy equipment could create fugitive dust and emit nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO2), hydrocarbons (HC), and particulate matter with a diameter of less than 10 microns (PM10) as a result of diesel fuel combustion. The primary pollutant of concern in fugitive dust would be PM10.

Construction emissions would be short term and temporary, but could still cause adverse effects on local air quality. Bay Area Air Quality Management District (BAAQMD), in its CEQA Guidelines, has developed an analytical approach that obviates the need to quantitatively estimate these emissions. Instead, BAAQMD has identified a set of feasible PM10 control measures for construction activities. The project includes these measures (see p. 28 to reduce the effects of construction activities to an

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

insignificant level. Because the project would include these mitigation measures, it would not cause significant construction-related air quality effects. Overlapping construction schedules with other Concourse projects, however, may create construction emissions that could be cumulatively significant. The EIR will identify the construction periods for all projects occurring simultaneously in the Concourse. These issues will be discussed in a brief air quality section of the EIR.

Emissions from Operations

The extent of foreseeable traffic increases has not been determined. The project could potentially result in air quality impacts if traffic volumes increase substantially. Using data from the traffic study, the EIR will calculate vehicular emissions and compare them to applicable significance thresholds published by the BAAQMD. Carbon monoxide emissions and the possibility of exceeding carbon monoxide standards at congested intersections and nearby sensitive receptors could be of particular concern. These issues will be discussed in a brief air quality section of the EIR.

Shadows

Section 295 of the City Planning Code was adopted in response to Proposition K (passed in November 1984) in order to protect certain public open spaces from shadowing by new structures during the period between one hour after sunrise and one hour before sunset, year round. Section 295 restricts new shadow upon public spaces under the jurisdiction of the Recreation and Park Department by any structure exceeding 40 feet unless the City Planning Commission finds the impact to be insignificant. Planning Code Section 295(a)(3) states that buildings permits for structures that will cast shade or shadow upon properties under the jurisdiction of the Recreation and Park Commission may not be issued with the exception of “[s]tructures to be constructed on property under the jurisdiction of the Recreation and Park Commission for recreational and park-related purposes.” The proposed structure includes elements ranging up to 67 feet in height; therefore, a shadow study will be completed and the EIR will discuss its results.

Wind

The proposed project would maintain the approximate overall location and massing of the existing structures on the site and would not substantially change wind conditions or create discomfort for pedestrians and people in nearby seating areas. The proposed project would range up to 67 feet in height; typically, buildings of 100 feet in height or less would not create adverse pedestrian wind conditions. The project site is largely sheltered from prevailing winds by the existing dense forest upwind. As the existing Academy building is not considered a generator of substantial pedestrian-level wind conditions, the similar height and bulk of the proposed project would also not be expected to generate substantial pedestrian-level wind conditions. Therefore, wind conditions impacts would not be considered significant, and the EIR will not discuss them further.

7. Utilities / Public Services. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Breach published national, state or local standards relating to solid waste or litter control?		X	X
b. Extend a sewer trunk line with capacity to serve new development?		X	X
c. Substantially increase demand for schools, recreation or other public facilities?		X	X

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
d. Require major expansion of power, water, or communications facilities?	X	X	X

The project would replace existing museum uses with similar uses, although at a slightly greater intensity. The aquarium is served by seawater pumped from Ocean Beach through an underground vault. The system consists of an Ocean Beach vault/pump station and a series of underground pipes running through the park to the site that pull seawater filtered through sand to the Academy. This system would remain in place, with minor upgrades to the vault system. The project would not substantially increase existing solid waste, water demand, or wastewater at the project site. Therefore, the EIR will not discuss these issues further.

As a museum use, the project would not directly change the demand for schools, recreation or other public facilities.

The project site presently receives police and fire protection services, and the project would create little additional demand for fire and police services in the area. Although the project could increase the number of calls received from the area or the level of regulatory oversight that must be provided as a result of the increased concentration of activity on-site, the increase in responsibilities would not likely be substantial in light of the existing demand for police and fire protection services in Golden Gate Park. Furthermore, the increase in demand would not require the construction of any new police or fire prevention facilities. For these reasons, the EIR will not discuss further police or fire protection services.

The project site is already served by power utilities and communication facilities, with some potential reconfiguration to accommodate new construction. The new building would tap into these grids. Therefore, no new power or communications facilities would be necessary as a result of project implementation, and the EIR will not discuss this issue further.

8. Biology. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Substantially affect a rare or endangered species of animal or plant, or the habitat of the species?	X	X	X
*b. Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	X	X	X
c. Require removal of substantial numbers of mature, scenic trees?	X	X	X

The proposed project site is within Golden Gate Park, an area where intensive landscaping and landscaping maintenance activities have occurred since 1871. As such, the overall suitability for wildlife habitat and native and naturalized plant species has decreased since the late 1800s. The project site is not identified in the Golden Gate Park Master Plan as a known area of wildlife species habitation or native and/or naturalized plant species and development of the site would not affect any rare, threatened or endangered plants, animals or habitats. The project would not interfere with any resident or migratory species. Therefore, this topic will not be discussed in the EIR.

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

The Academy of Sciences will retain a consultant arborist to prepare a tree survey report for review of tree species, location, and condition; this information will be used to plan landscape features for the Academy. The effects of this project landscaping in Golden Gate Park will be discussed in the EIR as part of visual quality analysis.

9. Geology / Topology. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?		X	X
b. Change substantially the topography or any unique geologic or physical features of the site?		X	X

The Community Safety Element of the San Francisco General Plan contains maps that show areas subject to geologic hazards. The project site is located in an area subject to ground shaking from earthquakes along the San Andreas and Northern Hayward Faults and other faults in the San Francisco Bay Area (Maps 2 and 3 in the Community Safety Element). The project site is not in an area of liquefaction potential (Map 4 in the Community Safety Element), a Seismic Hazards Study Zone designated by the California Division of Mines and Geology.

The Department of Building Inspection, in its review of the building permit application, requires the project sponsor to prepare a geotechnical report that assesses the nature and severity of the hazards at the site and recommends project design and construction features to reduce the hazards. To ensure compliance with all San Francisco Building Code provisions regarding structural safety, when the Department of Building Inspection reviews the geotechnical report and building plans for a proposed project, it determines necessary engineering and design features for the project to reduce potential damage to structures from ground shaking. The project includes a mitigation measure (see pp. 28-29) to facilitate Building Code compliance and reduce potential geological hazards. In this way, potential damage to structures from geologic hazards at a project site would be ameliorated through the Department of Building Inspection requirement for a geotechnical report and review of the building permit application. A geotechnical report was prepared for the Academy by Rutherford & Chekene Consulting Engineers in July 2002.⁴ The project site contains loose to semi-compact sands and silty sands in the upper 25 feet, which indicates a high potential for compaction settlement. This issue will be addressed in the building's design as described in the recommended construction measures of the geotechnical report. The project sponsor intends to implement all recommended measures included in the report, as necessary. Based on exploratory borings, the water table appears to be at a depth greater than 50 feet. The site is relatively flat and covered by existing structures indicating that the potential for large-scale landsliding and erosion is very low.

The project would include excavation at the site for construction of a new basement level and partial sub-basement. The basement of the new Academy would extend beneath all of the new buildings. The foundation of the existing buildings would be removed as part of the demolition and excavation process, as the new basement would be deeper than the existing substructures. Maximum depths are expected to occur to approximately 36 feet below grade, as the existing basement would be removed. The sub-basement level in selected areas housing the aquarium exhibits and water storage tanks would be constructed at approximately 22 feet below grade. The new full basement level would average 14 feet below grade. The basement would function as a "concrete box," with a concrete slab on grade and concrete retaining walls to three sides. The south side of the structure would be level with the cut slope. The foundations are anticipated to consist of spread footings. It is not anticipated that pile driving will be

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

required for the facility. Some limited piles may be required for temporary shoring. The project, as proposed, would excavate approximately 40,000 cubic yards (cy) of soil; approximately 14,000 cy of excavated soil would be used as fill at the site and up to approximately 26,000 cy would either be reused in the park or hauled off the site. The Academy would require additional excavation and foundation construction for the two-level, below grade expansion area to the south of the main facility. The project would not significantly alter the topography of the site, or otherwise affect any unique geologic or physical features of the site. No further analysis of geology and seismicity is required in the EIR.

10. Water. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Substantially degrade water quality, or contaminate a public water supply?		X	X
*b. Substantially degrade or deplete ground water resources, or interfere substantially with ground water recharge?	X		X
*c. Cause substantial flooding, erosion or siltation?	X		X

The project would include excavation to construct a new basement level and partial sub-basement level beneath the existing Academy at about 14 to 22 feet below grade. Previous excavation has occurred on the site to a maximum depth of 36 feet; no groundwater was encountered at this level. Based on groundwater data from a nearby site, the water table appears to be at a depth greater than 50 feet. As such, it is unlikely that dewatering would be required. However, any groundwater encountered during construction would be subject to the requirements of the San Francisco Industrial Waste Ordinance (Ordinance No. 199-77), requiring that groundwater meet specified standards before being discharged into the sewer system. The Bureau of Environmental Regulation and Management of the Department of Public Works would be notified if the project were to require dewatering.

Should dewatering be necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based upon this discussion, the soils report would contain a determination as to whether or not a lateral movement and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Building Inspection would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Groundwater monitoring wells and/or instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable movement were to occur during construction, groundwater recharge would be used to halt this settlement. The project sponsor would delay construction if necessary. Costs for the survey and any necessary repairs to service lines under the street would be borne by the project sponsor. The project would include mitigation measures to reduce the potential water quality effects of dewatering (see p. 29) Therefore, no further analysis of water resources is required in the EIR.

The project site is almost entirely paved or covered by landscaping and structures. The renovated Academy of Sciences uses would have a footprint of approximately 205,000 sq. ft., as compared to the existing 240,000 sq. ft. Therefore, the project would not substantially affect the area of impervious surface at the site or alter site drainage. The project would reduce the overall amount of impervious surface at the site, both through reduction of the building footprint, and through the addition of a vegetated roof structure, approximately 175,000 sq. ft. in area. The new CAS building would fit entirely

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

within the existing CAS site. It would be located generally within the existing footprint, but would occupy a somewhat modified area due to its reconfigured design. Project-related wastewater and storm water would continue to flow to the combined sewer system. During construction, requirements to reduce erosion would be implemented pursuant to California Building Code Chapter 33, Excavation and Grading. During operations, the project would comply with all local wastewater discharge requirements. Therefore, this topic will not be further discussed in the EIR.

11. Energy / Natural Resources. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?		X	X
b. Have a substantial effect on the potential use, extraction, or depletion of a natural resource?		X	

San Francisco consumers have recently experienced rising energy costs and uncertainties regarding the supply of electricity. The causes of these conditions are under investigation and are the subject of much debate. Part of the problem may be that the State does not generate sufficient energy to meet its demands and must import energy from outside sources. Another part of the problem may be the lack of cost controls as a result of deregulation. The California Energy Commission (CEC) is currently considering applications for the development of new power-generating facilities in San Francisco, the Bay Area and elsewhere in the State. These facilities could supply additional energy to the power supply "grid" within the next few years. The project would meet current State and local codes concerning energy consumption, including Title 24 of the California Code of Regulations enforced by the Department of Building Inspection. For this reason, it would not cause a wasteful use of energy. The project-generated demand for electricity would be negligible in the context of overall demand within San Francisco and the State and would not in and of itself require a major expansion of power facilities. Therefore, the energy demand associated with the proposed projects would not result in a significant physical environmental effect and will not be further discussed in the EIR.

12. Hazards. Would the project:

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*a. Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?		X	X
*b. Interfere with emergency response plans or emergency evacuation plans?		X	X
c. Create a potentially substantial fire hazard?		X	X

Hazardous Materials Use

A Phase I Environmental Site Assessment (ESA) of hazardous materials at the project site has been prepared by Iris Environmental for the Academy.⁵ The findings of the ESA are summarized in this section. According to the ESA, several of the Academy's collections (e.g., birds, mammals, reptiles) were originally treated with arsenic to prevent insect and larval damage. Arsenic may be present on various building materials at CAS and may also be present beneath the buildings at CAS.⁶ If it were

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

determined by sample collection and analysis that arsenic is present on building materials, the impacted materials would be tracked and managed throughout the demolition. If deemed necessary, some impacted materials may be mitigated prior to demolition. Soils with elevated arsenic concentrations may require excavation and off-site disposal. Mitigation measures to reduce potential impacts to less-than-significant levels are included on pp. 29-30. This issue will not be discussed in the EIR.

Specimens at CAS are preserved using chemicals including formalin, ethyl alcohol, naphthalene, and formaldehyde. Several thousand gallons of ethyl alcohol are currently located in the collections of CAS.⁷ These chemicals, as well as freon present in cooling systems at CAS, will be removed from the site prior to demolition.

Approximately the same type and amount of chemicals currently used at the site would also be used during operation of the proposed project, given the similar nature of the program. These chemicals would be handled and stored in accordance with the standard regulatory procedures and practices which are currently in effect at the existing CAS. As a result, chemicals used in the proposed project would not pose a significant hazard to the public, and will not be discussed further in the EIR.

Soil and Groundwater

The site does not appear on the *State of California Hazardous Waste and Substances Sites List*. An underground fuel storage tank was removed in 1998, as further described below. Soil samples collected at that time did not contain detectable levels of diesel or benzene. The Department of Public Health accepted the 1998 report and does not require any further investigation. Recent project geotechnical investigations of the groundwater at the site indicates that the groundwater level is deep within the soil layers, more than 50 feet below the surface.⁸ As such, excavation and construction of the proposed project, which would not exceed 36 feet, would not have the potential to impact groundwater. This issue will not be discussed in the EIR.

The project would excavate approximately 40,000 cubic yards (cy) of soil; approximately 14,000 cy of excavated soil would be used as fill at the site and approximately 26,000 cy would be hauled off the site (or some may be reused within the park). Additional excavation would be required for the future expansion area. If residual soil and groundwater contamination were to exist in areas to be excavated, contaminated soil or groundwater could be encountered during excavation and other earth-moving activities. Without appropriate safeguards, such activities could potentially expose workers and possibly the public to chemical compounds in soils, soil gases (gases or vapors, mostly air, trapped within soil), or groundwater. Exposure would most likely occur through skin contact or inhalation. Workers directly engaged in on-site activities would face the greatest potential for exposure to contaminants. The public could also be exposed if access to the construction site were insufficiently controlled. Hazardous materials exposure could cause various short-term or long-term health effects specific to each chemical present at the site if present in sufficient concentration and duration.

Soil and groundwater contaminants would need to be characterized adequately to ensure that appropriate plans are implemented for soil and groundwater handling. Any contaminated soil or groundwater disturbed at the site would need to be managed appropriately, and residual risks to future occupants of the site would need to be kept within acceptable levels as determined by the San Francisco Department of Public Health and other oversight agencies. Unless soil and groundwater management plans are adequately prepared and implemented, the project could pose a significant impact by potentially creating a substantial human health hazard or involving the disposal of materials in a manner that poses substantial hazards.

The project includes a mitigation measure to further characterize soil and groundwater conditions (pp. 29-30). If additional environmental studies conclude that soil and groundwater conditions could pose significant human health or safety hazards, a Site Safety and Health Plan would need to be prepared pursuant to California Division of Occupational Safety and Health requirements and National Institute for Occupational Safety and Health guidance to ensure worker safety. Under these requirements, the Site Safety and Health Plan would need to be prepared prior to initiating any earth-moving activities at the site. The plan would contain policies and procedures to protect site workers from potential health and safety impacts related to contaminated soil and groundwater. The plan would apply to all site activities through the completion of earthwork construction. It would include specific training requirements and personal protection equipment for on-site workers. The Site Safety and Health Plan is not required to include measures to minimize the potential for public exposure. A mitigation measure is included to minimize potential public exposure (pp. 29-30). This issue will not be discussed in the EIR.

Storage Tanks

A 12,000-gallon Underground Storage Tank (UST) was closed in place at CAS in 1998 with oversight from the San Francisco Department of Public Health (DPH) Local Oversight Program.⁹ As part of the tank closure, soil samples collected prior to the closure pursuant to Underground Tank Regulations, California Code of Regulations, Title 23 Waters, Chapter 16, Sections 2670 and 2672, indicated that the UST was not a source of contamination. The tank is currently filled with gravel or cement grout and fuel can no longer be introduced or stored in the vessel. It was closed under oversight from the DPH, which required the collection of soil samples prior to closure pursuant to Underground Tank Regulations, California Code of Regulations, Title 23 Waters, Chapter 16, Sections 2670, 2672. Two borings were drilled adjacent to the UST on December 19, 1997. Six soil samples were collected from depths of 5, 10, and 15 feet from the two borings. The soil samples were analyzed for the presence of petroleum hydrocarbons, such as diesel, kerosene, motor oil, and metals. Diesel was detected in one boring at concentrations of 6.0 and 1.0 milligrams per kilogram (mg/kg) at depths of 10 and 15 feet, respectively, and kerosene was detected at a concentration of 2.5 mg/kg at a depth of 10 feet in the same boring. None of the metals were detected at concentrations above the Region IX Preliminary Remediation Goals (PRGs), with the exception of arsenic. Arsenic was detected at a maximum concentration of 7.0 mg/kg, which is above the PRGs for residential and industrial soils (0.39 and 2.7 mg/kg). Mitigation Measure 9a on pp. 29-30 identifies appropriate disposal methods for any soils containing elevated concentrations of hazardous substances, including arsenic. The DPH Hazardous Materials Unified Program Agency issued a Notice of Completion for Underground Storage Tank Closure in Place on September 6, 2000 (CCSF 2000). The notice indicates that based on the analytical results of the soil sampling, further site investigation and cleanup is not required. A copy of the Notice of Completion is reproduced in the Phase I Environmental Site Assessment Report. This topic will not be discussed in the EIR.

A 6,000-gallon Aboveground Storage Tank (AST) was installed at the project site in 1998 to replace the UST. The AST is used to store diesel fuel for use in the site's emergency generators. The AST is within a fenced enclosure and, to date, has not been known or documented to leak. Inspection of the AST will occur prior to demolition to identify evidence of leaks and to collect soil and groundwater samples to confirm that no releases have occurred, as needed. This topic will not be discussed in the EIR.

Building Materials

Due to the age of the building, it is likely that asbestos-containing materials (ACM) and lead containing materials (LCM) are present.¹⁰ The BAAQMD regulates airborne asbestos and is to be notified ten days in advance of any proposed demolition. Demolition activities involving lead-based paint are to comply with Chapter 36 of the *San Francisco Building Code*. The ordinance requires that containment barriers be

at least as protective of human health and the environment as those in the most recent *Guidelines for Evaluation and Control of Lead-Based Paint Hazards* promulgated by the U.S. Department of Housing and Urban Development. Iris Environmental is currently conducting full inspections of the site to determine and inventory the presence of ACM and LCM. Demolition activities of ACM and LCM are regulated by Cal-OSHA and Cal-OSHA/Cal-EPA, respectively. The project sponsor would be required to comply with all applicable Cal-OSHA and Cal-EPA regulations and *San Francisco Building Code* requirements as part of the project. As a result, exposure to hazardous building materials is expected to be less-than-significant, and will not be discussed further in the EIR.

In addition to asbestos and lead, the buildings could also contain polychlorinated biphenyls (PCBs), mercury, or other hazardous materials.¹¹ In the past, PCBs were commonly installed in electrical transformers and fluorescent light ballasts. Mercury is common in electrical switches and fluorescent light bulbs. It is possible that PCBs are present in several locations on the project site. If hazardous materials exist in facilities to be demolished, they could pose hazards to workers, Golden Gate Park visitors, or the natural environment if not properly removed before demolition. However, the project includes a mitigation measure to reduce the potential health risks associated with potentially hazardous building materials by securing the investigation, removal, and disposal of such materials prior to demolition (see pp. 29-30). The measure would ensure compliance with existing regulations applicable to the management of any potentially hazardous building components. For example, PCBs are regulated under the Federal Toxic Substances Control Act of 1976, and mercury is regulated as a hazardous waste. These existing laws and regulations are designed to ensure the health and safety of workers, neighbors, and the natural environment. Therefore, these issues do not require further analysis and will not be discussed in the EIR.

Fire Safety and Emergency Access

San Francisco ensures fire safety through provisions of the Building Code and Fire Code. Existing buildings are required to meet standards contained in these codes. The proposed project would also conform to these standards, which may include development of an emergency procedure manual and an exit drill plan. In this way, potential fire hazards (including those associated with hydrant water pressure and emergency access) would be addressed during the permit review process.

With implementation of the mitigation measures included as part of the project, as identified on pp. 29-30, potential health and safety issues related to future hazardous materials use, contaminated soil and groundwater, potentially hazardous building components, and fire safety and emergency access would be reduced to less-than-significant levels. Therefore, these issues do not require further analysis and will not be discussed in the EIR.

13. Cultural Resources. Would the project:

Yes No Discussed

- *a. Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study? TO BE DETERMINED
- b. Conflict with established recreational, educational, religious or scientific uses of the area? X X

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
c. Conflict with the preservation of buildings subject to the provisions of Article 10 or Article 11 of the City Planning Code?	X		X

Archaeological/Cultural Resources

Archeo-Tec Consulting Archaeologists completed an archival cultural resources evaluation of the project vicinity for potential subsurface historical or prehistoric archaeological resources and to document the history of the area. Potential for the existence of subsurface cultural resources of the prehistoric/protohistoric period (c. 4000 B.C. - A.D. 1775), Spanish/Mexican and Early American era (1776-1848), the Gold Rush era (1849-1857), and the Late 19th Century era (1858-1906) were systematically examined.

There are no currently recorded prehistoric or historical archaeological sites identified within the project site. However, the region's natural state, brush-covered sandy hills and low-lying areas with numerous fresh-water ponds, would have been generally favorable to the establishment of prehistoric or protohistoric settlements and it is possible that subsurface cultural resources from the prehistoric/protohistoric period may be encountered within the project site. There are no currently recorded archaeological sites within the proposed project site. Early prehistoric resources tend to be deeply buried and are not predictable on the basis of historically known topographic features. Early prehistoric sites have been encountered in San Francisco at depths up to 75 feet below the existing grade.

The proposed project site is within Golden Gate Park, an area where intensive fill and grading activities have occurred since 1871. Previous construction activities associated with the existing structures, such as excavation, grading and other ground disturbances, have occurred at the project site. Prior excavation at the site reached a maximum depth of 36 feet. Archival sources indicate that architectural and other associated cultural remnants associated with the 1894 California Midwinter International Exposition may lie buried within the Music Concourse area.

The proposed project would include excavating the project site to a depth of up to about 36 feet to accommodate foundations and new basement areas, and to remove the existing basement. The project would include excavation of approximately 40,000 cubic yards (cy) of soil, and additional excavation for the future expansion area. Although there is no indication of archeological resources at the project site based upon archival evidence, there is some potential for the proposed project to disrupt or adversely affect previously unknown prehistoric resources or historical archaeological resources from the prehistoric/protohistoric period and/or the Late 19th Century period. The project includes a mitigation measure (see 30-32) that would reduce the potential impact to archaeological/cultural resources to a less-than-significant level. Archaeological resources will not be discussed further in the EIR.

Historical Resources

There are no historic districts or properties listed in state or federal inventories of historic resources on the proposed Academy project site. The California Academy of Sciences buildings are not listed on the National Register of Historic Places or the California Register of Historical Resources nor are they subject to the provisions of Article 10 or Article 11 of the City Planning Code. The buildings were reviewed in the 1976 Department of City planning City-wide Survey Buildings included in the survey,

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

representing roughly 10% of the City's entire building stock, were rated from a low of "0" to a high of "5." The Academy buildings received a rating of "0" with field notes indicating that potentially historic buildings had been "obscured by newer additions."

Page & Turnbull is currently preparing an Historic Resources Study to evaluate the historical significance of the Academy, and to identify potential project-related effects on historic architectural resources, if any. The EIR will present a summary of the findings in the study.

Adjacent historic resources include the Hagiwara Japanese Tea Garden, approximately 800 feet northwest of the project site, which is listed in the California Register of Historical Resources as a result of a formal determination of eligibility for individual listing on the National Register of Historic Places in 1994. Golden Gate Park, as a whole, and the Spreckels Temple of Music, individually, appear eligible for the National Register of Historic Places. In addition, the Francis Scott Key Monument at the east end of the Music Concourse is listed as San Francisco City Landmark No. 96. The proposed project would not directly or physically effect on any of these resources, which are considered significant historic resources under CEQA. The potential impacts of the project on historic resources will be further discussed in the EIR.

C. OTHER

Yes No Discussed

Require approval of permits from City Departments other than the Department of City Planning or Bureau of Building Inspection or from Regional, State or Federal Agencies?

X

D. MITIGATION MEASURES

Yes N/A No

1. Could the project have significant effects if mitigation measures are not included in the project? X
2. Are all mitigation measures necessary to eliminate significant effects included in the project? X

The following are mitigation measures related to topics determined to require no further analysis in the EIR. The EIR will contain a chapter describing mitigation measures proposed as part of the project and measures that would be, or could be, adopted to reduce potential adverse project effects identified in the EIR.

Construction Noise

1. The project sponsor would require project construction contractor(s) to predrill holes to the maximum depth feasible on the basis of soil conditions. Contractors would be required to use construction equipment with state-of-the-art noise shielding and muffling devices. If pile driving is required, the project sponsor would also require that contractors limit pile driving activity to result in the least disturbance to neighbors, as determined by the Department of Building Inspection.

Air Quality / Climate

2. The project sponsor would require the contractor(s) to spray the site with water during excavation and construction activities; spray unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand, and other material; cover trucks hauling debris, soil, sand or other such material; and sweep surrounding streets during excavation and construction at least once per day to reduce particulate emissions.
3. Ordinance 175-91, passed by the Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities. Therefore, The project sponsor would require that the contractor(s) obtain reclaimed water from the Clean Water Program for this purpose. The project sponsors would require the project contractor(s) to maintain and operate construction equipment so as to minimize exhaust emissions of particulates and other pollutants, by such means as a prohibition on idling motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions from equipment that would be in frequent use for much of the construction period.

Geology / Topography

4. One or more geotechnical investigations by a California-licensed geotechnical engineer are included as part of the project. The project sponsor and its contractors would follow the recommendations of the final geotechnical reports regarding any excavation and construction for the project. The project sponsor would ensure that the construction contractor conducts a pre-construction survey of existing conditions and monitors the adjacent buildings for damage during construction, if recommended by the geotechnical engineer.
5. If dewatering were necessary, the final soils report would address the potential settlement and subsidence impacts of this dewatering. Based on this discussion, the soils report would determine whether or not a lateral movement and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey were recommended, the Department of Building Inspection would require that a Special Inspector (as defined in Article 3 of the Building Code) be retained by the project sponsor to perform this monitoring. Instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable movement were to occur during construction, groundwater recharge would be used to halt this settlement. The project sponsor would delay construction if necessary. Costs for the survey and any necessary repairs to service lines under the street would be born by the project sponsor.

If dewatering were necessary, the project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding dewatering to avoid settlement of adjacent streets, utilities, and buildings that could potentially occur as a result of dewatering.

6. The project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding installation of settlement markers around the perimeter of shoring to monitor any ground movements outside of the shoring itself. Shoring systems would be modified as necessary in the event that substantial movements are detected.

Water Quality

7. If dewatering were necessary, the project sponsor would follow the recommendations of the geotechnical engineer or environmental remediation consultant, in consultation with the Bureau of Environmental Regulation and Management of the Department of Public Works, regarding treatment, if any, of pumped groundwater prior to discharge to the combined sewer system.

If dewatering were necessary, groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this were found to be necessary by the Bureau of Environmental Regulation and Management of the Department of Public Works to reduce the amount of sediment entering the combined sewer system.

8. The project sponsor would require the general contractor to install and maintain sediment traps in local storm water intakes during construction to reduce the amount of sediment entering the combined sewer system, if this were found to be necessary by the Bureau of Environmental Regulation and Management of the Department of Public Works.

Hazards

9. In addition to local, state, and federal requirements for handling hazardous materials and soil and groundwater containing chemical contaminants, the project sponsor would enter into a voluntary remedial action agreement with the Department of Public Health pursuant to Health and Safety Code Section 101480 et seq. At a minimum, the project sponsor would undertake the following work and any additional requirements imposed by the Department of Public Health under the agreement.

- a. A Phase II Environmental Site Assessment shall be prepared for the project site. It would involve the collection and analysis of soil and groundwater samples as directed by the site assessment consultant. The project sponsor would conduct a soil and groundwater investigation to assess whether possible chemical releases from within the CAS facility may have degraded subsurface conditions through the introduction of hazardous chemicals including arsenic. This assessment would be completed by a Registered Environmental Assessor, Registered Geologist, or similarly qualified individual prior to initiating any earth-moving activities at the project site.

If it were determined by sample collection and analysis that arsenic (or any other chemical of concern) is present on building materials, the impacted materials would be tracked and managed throughout the demolition. If deemed necessary, some impacted materials may be mitigated prior to demolition. Soils with elevated arsenic concentrations (or any other chemical of concern) may require excavation and off-site disposal. Soils with elevated arsenic concentrations (or any other chemical of concern) will be disposed of off-site in accordance with California hazardous waste disposal regulations (CCR Title 26) or will be managed in place with approval of the California Department of Toxic Substances Control (DTSC) or the Regional Water Quality Control Board (RWQCB).

If the Phase II assessment results in earth-moving activity that requires preparation of a Site Safety and Health Plan, in addition to measures that protect on-site workers, the plan would include measures to minimize public exposure to contaminated soils. Such measures would include dust control, appropriate site security, restriction of public access, and posting of warning signs, and would apply from the time of surface disruption through the completion of earthwork construction.

- b. Prior to any demolition or excavation at the project site, surveys would be conducted to identify any potentially hazardous materials (other than asbestos and lead) in existing buildings or building materials. At a minimum, these surveys would identify any polychlorinated biphenyls, mercury, or other hazardous materials that would require removal and disposal before demolition. These surveys would be completed by a Registered Environmental Assessor or a similarly qualified individual.
- c. All reports and plans prepared in accordance with this mitigation measure would be provided to the San Francisco Department of Public Health and any other agencies identified by the Department of Public Health. When all hazardous materials have been removed from existing buildings, and soil and groundwater analysis and other activities have been completed, as appropriate, the project sponsor would submit to the San Francisco Planning Department and the San Francisco Department of Public Health (and any other agencies identified by the Department of Public Health) a report stating that the mitigation measure has been implemented. The report would describe the steps taken to comply with the mitigation measure and include all verifying documentation. The report would be certified by a Registered Environmental Assessor or a similarly qualified individual who states that all necessary mitigation measures have been implemented.

Cultural Resources

10. Based on the potential that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology. The archeological consultant shall prepare an archeological research design (ARD) that shall include an historical context, an assessment of research potential in terms of research questions, and an evaluation of the significance as an historical resource (CEQA Guidelines Sect. 15064.5 (a)(c)) of the expected archeological resources. The archeological consultant shall undertake an archeological monitoring program. The archeological monitoring program, whether or not significant archeological resources were encountered, shall result in a written report of findings to be submitted first and directly to the Environmental Review Officer (ERO). Archeological monitoring and/or data recovery programs required by this measure could suspend project construction activities for up to a maximum of four weeks. At the direction of the ERO, the suspension of project activities can be extended beyond four weeks only if such a suspension is necessary and is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

Archeological monitoring program. The archeological monitoring program shall minimally include the following provisions:

- The ERO in consultation with the project archeologist shall determine what project activities shall be archeologically monitored. In most cases, any soils disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the potential risk these activities pose to archaeological resources and to their depositional context;

- The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archaeological monitor(s) shall be present on the project site until the ERO has, in consultation with the archeological consultant, determines that project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction crews and heavy equipment until the resource is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation with the ERO. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, present the findings of this assessment to the ERO.

If the ERO in consultation with the archeological consultant determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, either:

- A) the proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- B) an archeological data recovery program shall be implemented.

If an archeological data recovery program is required by the ERO, the archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The project archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP. The archeological consultant shall prepare a draft ADRP that shall be submitted to the ERO for review and approval. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain.

Human Remains, Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects.

Final Archeological Resources Report. The archeological consultant shall prepare a Draft Final Archeological Resources Report (FARR) evaluating the historical importance of the archeological resource and describing the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s). Information that may put at risk any archeological resource shall be provided in a separate removable insert within the draft final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO copies of the FARR shall be distributed as follows: the San Francisco Redevelopment Agency (number of copies as required by SFRA); California Archaeological Site Survey Northwest Information Center (1 copy); and the President of the Landmarks Preservation Advisory Board (1 copy). The Major Environmental Analysis division of the Planning Department shall receive three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

E. ALTERNATIVES

The EIR will discuss a variety of alternatives to the project that would reduce or eliminate any significant environmental effects. It will include a brief discussion of why an alternative site is infeasible and will also analyze the following:

- No-Project Alternative
- Renovation/Reuse Alternative

F. MANDATORY FINDINGS OF SIGNIFICANCE

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
*1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history?			<u>TO BE DETERMINED</u>
*2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?		X	X
*3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)			<u>TO BE DETERMINED</u>
*4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?			<u>TO BE DETERMINED</u>

* Derived from *State CEQA Guidelines* Appendix G; normally a significant effect.

If the existing Academy buildings are determined historically significant, their proposed demolition could result in a significant impact on those resources. This issue will be discussed in the EIR. The proposed project could contribute to cumulative traffic and air quality impacts; these topics will be discussed in the EIR. The project is not anticipated to cause a substantial adverse direct or indirect effect on human beings, nor does it have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.

G. ON THE BASIS OF THIS INITIAL STUDY

I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by, or agreed to by, the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers , in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers , in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

1-24-2002

Date

for Winter Project

Paul Maltzer
Environmental Review Officer
for
Gerald G. Green
Director of Planning

Endnotes

- ¹ Future expansion would add a 15,000 sq. ft. courtyard for a total footprint at 217,500 sq. ft. The remainder of the expansion area would be below grade, with a footprint of approximately 35,000 sq. ft.
- ² These figures do not include excavation for the expansion area, estimated to be 23,400 cubic yards of soil, the majority of which would be off-hauled from the site.
- ³ Economics Research Associates, *Attendance Potential*, February 27, 2002.
- ⁴ Rutherford & Chekene Consulting Engineers, *Draft Report Geotechnical Investigation, New California Academy of Sciences, Golden Gate Park, San Francisco, California*, July 2, 2002.
- ⁵ Iris Environmental, *Phase 1 Environmental Site Assessment, California Academy of Sciences, San Francisco, California*, September 19, 2002.
- ⁶ Ibid, p. 3.
- ⁷ Ibid, p.15.
- ⁸ Rutherford & Chekene Consulting Engineers, *Draft Report Geotechnical Investigation, New California Academy of Sciences, Golden Gate Park, San Francisco, California*, July 2, 2002, p.23.
- ⁹ Iris Environmental, *Phase 1 Environmental Site Assessment, California Academy of Sciences, San Francisco, California*, September 19, 2002, p. 16.
- ¹⁰ Ibid, p.13.
- ¹¹ Ibid, p.13 - 14.

APPENDIX B. AIR QUALITY – PROJECT EMISSIONS CALCULATION WORKSHEET

URBEMIS 2001 For Windows 6.2.2

File Name: C:\Program Files\URBEMIS 2001 For Windows\Projects2k\Academy of
Project Name: California Academy of Sciences
Project Location: San Francisco Bay Area

SUMMARY REPORT
(Pounds/Day - Summer)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SO2
TOTALS (ppd, unmitigated)	59.28	55.87	651.06	32.43	0.42
TOTALS (ppd, mitigated)	59.28	55.87	651.06	32.43	0.42

URBEMIS 2001 For Windows 6.2.2

File Name: C:\Program Files\URBEMIS 2001 For Windows\Projects2k\Academy of
 Project Name: California Academy of Sciences
 Project Location: San Francisco Bay Area

DETAIL REPORT
 (Pounds/Day - Summer)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	PM10	SO2
Academy of Sciences - Wee	20.27	20.61	240.06	12.35	0.16
Academy of Sciences - Sat	19.37	16.57	193.61	9.21	0.12
Academy of Sciences - Sun	19.65	18.69	217.39	10.87	0.14
TOTAL EMISSIONS (lbs/day)	59.28	55.87	651.06	32.43	0.42

Includes correction for passby trips.
 Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2005 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2001 (10/2001)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Academy of Sciences - Weel	992.00 trips / New Daily Pers	1.00	1,992.00
Academy of Sciences - Sat	2,285.00 trips / New Daily Pers	1.00	2,285.00
Academy of Sciences - Sun	2,130.00 trips / New Daily Pers	1.00	2,130.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	61.40		4.70	94.50	0.80
Light Truck < 3,750 lbs	9.30		11.00	88.90	0.10
Light Truck 3,751- 5,750	16.70		1.80	97.60	0.60
Med Truck 5,751- 8,500	7.20		12.50	79.20	8.30
Lite-Heavy 8,501-10,000	1.10		18.20	72.70	9.10
Lite-Heavy 10,001-14,000	0.30		0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.10		9.10	27.30	63.60
Heavy-Heavy 33,001-60,000	0.70		0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00		0.00	0.00	100.00
Urban Bus	0.00		0.00	0.00	100.00
Motorcycle	1.40		90.90	9.10	0.00
School Bus	0.10		0.00	0.00	100.00
Motor Home	0.70		0.00	100.00	0.00

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0

Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			

% of Trips - Commercial (by land use)

Academy of Sciences - Weekday		5.0	2.5	92.5
Academy of Sciences - Saturday		5.0	2.5	92.5
Academy of Sciences - Sunday		3.0	1.5	95.5

Changes made to the default values for Operations

The operational emission year changed from 2002 to 2005.

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

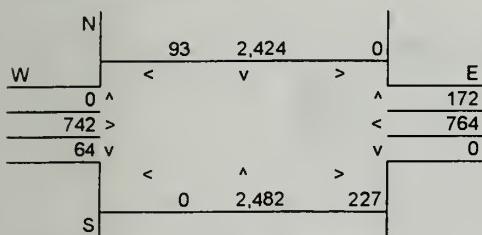
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2002

Roadway Data

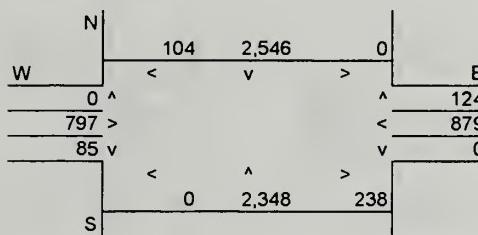
Intersection: Park Presidio/Fulton
 Analysis Condition: Existing Traffic Volumes

Roadway Type	No. of Lanes	Average Speed	
		A.M.	P.M.
At Grade	4	10	10
At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 5,197
 E-W Road: 1,905 N-S Road: 5,217
 E-W Road: 2,038

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,197	18.24	5.12	3.60	1.52
East-West Road	2.2	1.7	1.1	1,905	18.24	0.76	0.59	0.38
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,217	18.24	5.14	3.62	1.52
East-West Road	2.2	1.7	1.1	2,038	18.24	0.82	0.63	0.41

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour	
			50 Feet from Roadway Edge	100 Feet from Roadway Edge
50 Feet from Roadway Edge	11.6	11.7		8.2
100 Feet from Roadway Edge	9.9	10.0		7.0
300 Feet from Roadway Edge	7.6	7.7		5.4

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

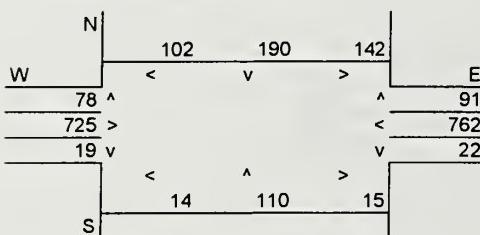
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	5.7
Background 8-hour CO Concentration (ppm):	4.0
Persistence Factor:	0.7
Analysis Year:	2002

Roadway Data

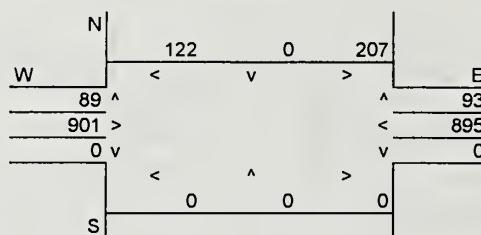
Intersection: Arguello/Fulton
 Analysis Condition: Existing Traffic Volumes

		Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
North-South Roadway:	Arguello	At Grade	4	10	10
East-West Roadway:	Fulton	At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 713
 E-W Road: 1,757

N-S Road: 511
 E-W Road: 2,096

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000¹

Roadway	A ₁ Reference CO Concentrations			B Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	50 Feet	100 Feet	300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	713	18.24	0.29	0.22	0.14
East-West Road	5.4	3.8	1.6	1,757	18.24	1.73	1.22	0.51
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	511	18.24	0.21	0.16	0.10
East-West Road	5.4	3.8	1.6	2,096	18.24	2.06	1.45	0.61

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	7.8	8.0	5.6
100 Feet from Roadway Edge	7.2	7.4	5.1
300 Feet from Roadway Edge	6.4	6.5	4.5

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

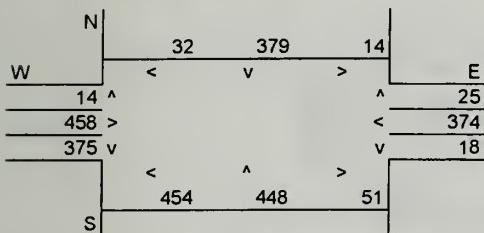
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2002

Roadway Data

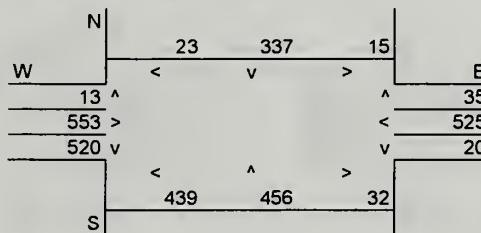
Intersection: Stanyan/Fulton
 Analysis Condition: Existing Traffic Volumes

		Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
North-South Roadway:	Stanyan	At Grade	4	10	10
East-West Roadway:	Fulton	At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 1,725
 E-W Road: 1,707

N-S Road: 1,804
 E-W Road: 2,073

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	1,725	18.24	1.70	1.20	0.50
East-West Road	2.2	1.7	1.1	1,707	18.24	0.69	0.53	0.34
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	1,804	18.24	0.72	0.56	0.36
East-West Road	5.4	3.8	1.6	2,073	18.24	2.04	1.44	0.61

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour		
50 Feet from Roadway Edge	8.1	8.5	6.0		
100 Feet from Roadway Edge	7.5	7.7	5.4		
300 Feet from Roadway Edge	6.6	6.7	4.7		

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

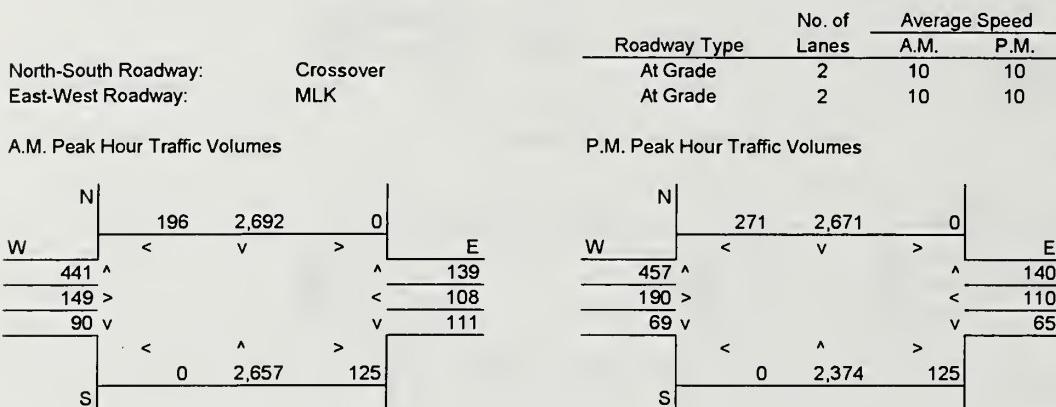
Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2002

Roadway Data

Intersection: MLK/Crossover
 Analysis Condition: Existing Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	6,125	N-S Road:	5,913
E-W Road:	984	E-W Road:	1,097

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	6,125	18.24	6.37	4.47	1.90
East-West Road	2.2	1.7	1.0	984	18.24	0.39	0.31	0.18
P.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	5,913	18.24	6.15	4.32	1.83
East-West Road	2.2	1.7	1.0	1,097	18.24	0.44	0.34	0.20

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	12.5	12.3	8.8
100 Feet from Roadway Edge	10.5	10.4	7.4
300 Feet from Roadway Edge	7.8	7.8	5.5

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

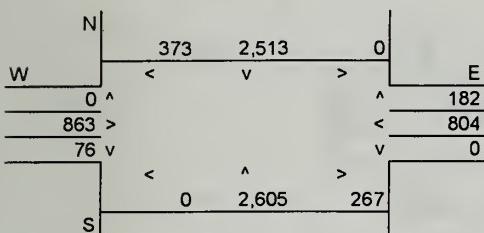
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2002

Roadway Data

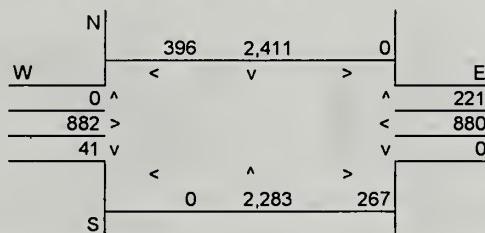
Intersection: Lincoln/19th
 Analysis Condition: Existing Traffic Volumes

		Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
North-South Roadway:	19th	At Grade	4	10	10
East-West Roadway:	Lincoln	At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 5,673
 E-W Road: 2,116

N-S Road: 5,311
 E-W Road: 2,250

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000¹

Roadway	A ₁ Reference CO Concentrations			B Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	50 Feet	100 Feet	300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,673	18.24	5.59	3.93	1.66
East-West Road	2.2	1.7	1.1	2,116	18.24	0.85	0.66	0.42
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,311	18.24	5.23	3.68	1.55
East-West Road	2.2	1.7	1.1	2,250	18.24	0.90	0.70	0.45

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour		
				50 Feet from Roadway Edge	100 Feet from Roadway Edge
50 Feet from Roadway Edge	12.2	11.9	8.5		
100 Feet from Roadway Edge	10.3	10.1	7.2		
300 Feet from Roadway Edge	7.8	7.7	5.5		

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

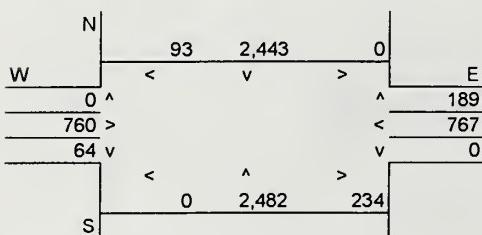
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2005

Roadway Data

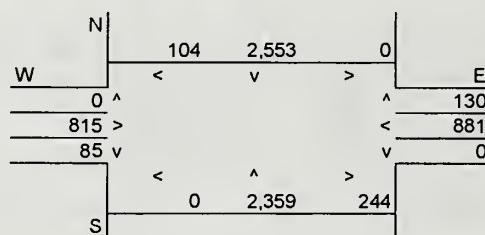
Intersection: Park Presidio/Fulton
 Analysis Condition: Baseline Traffic Volumes w/Project

	Roadway Type	No. of Lanes	Average Speed	
			A.M.	P.M.
North-South Roadway:	Park Presidio	At Grade	4	10
East-West Roadway:	Fulton	At Grade	4	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	5,223	N-S Road:	5,241
E-W Road:	1,950	E-W Road:	2,070

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,223	14.08	3.97	2.79	1.18
East-West Road	2.2	1.7	1.1	1,950	14.08	0.60	0.47	0.30
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,241	14.08	3.98	2.80	1.18
East-West Road	2.2	1.7	1.1	2,070	14.08	0.64	0.50	0.32

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	10.3	10.4	7.3
100 Feet from Roadway Edge	9.0	9.0	6.3
300 Feet from Roadway Edge	7.2	7.2	5.1

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

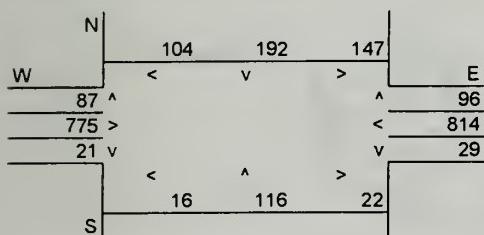
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2005

Roadway Data

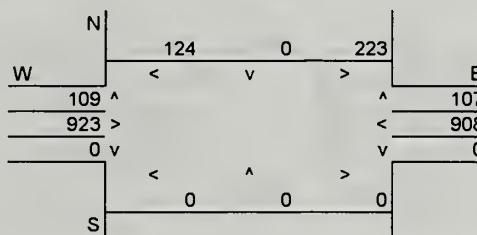
Intersection: Arguello/Fulton
 Analysis Condition: Baseline Traffic Volumes w/Project

	Roadway Type	No. of Lanes	Average Speed	
			A.M.	P.M.
North-South Roadway:	Arguello	4	10	10
East-West Roadway:	Fulton	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 742
 E-W Road: 1,883

N-S Road: 563
 E-W Road: 2,161

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	A ₁ Reference CO Concentrations			B Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	50 Feet	100 Feet	300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	742	14.08	0.23	0.18	0.11
East-West Road	5.4	3.8	1.6	1,883	14.08	1.43	1.01	0.42
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	563	14.08	0.17	0.13	0.09
East-West Road	5.4	3.8	1.6	2,161	14.08	1.64	1.16	0.45

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	7.4	7.6	5.3
100 Feet from Roadway Edge	6.9	7.0	4.9
300 Feet from Roadway Edge	6.3	6.3	4.4

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

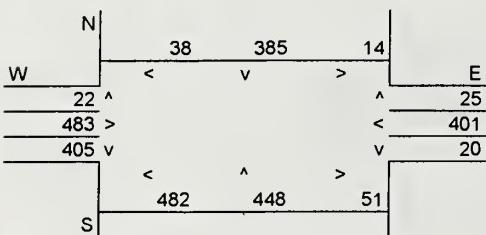
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2005

Roadway Data

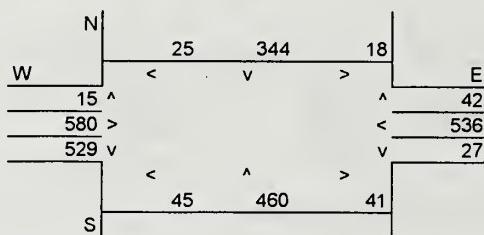
Intersection: Stanyan/Fulton
 Analysis Condition: Baseline Traffic Volumes w/ Project

North-South Roadway:	Stanyan	Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
		At Grade	At Grade	At Grade	At Grade
East-West Roadway:	Fulton	At Grade	4	10	10
		At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 1,791
 E-W Road: 1,831

N-S Road: 1,446
 E-W Road: 1,730

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	A ₁ Reference CO Concentrations			Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	1,791	14.08	0.55	0.43	0.28
East-West Road	5.4	3.8	1.6	1,831	14.08	1.39	0.98	0.41
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	1,446	14.08	0.45	0.35	0.22
East-West Road	5.4	3.8	1.6	1,730	14.08	1.32	0.93	0.39

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour	
			50 Feet from Roadway Edge	100 Feet from Roadway Edge
50 Feet from Roadway Edge	7.7	7.5		5.4
100 Feet from Roadway Edge	7.1	7.0		5.0
300 Feet from Roadway Edge	6.4	6.4		4.5

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

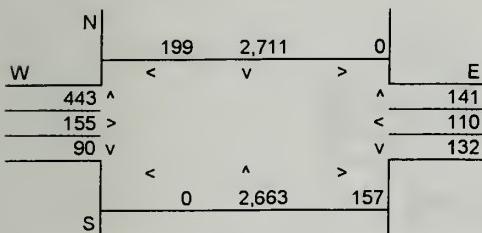
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2005

Roadway Data

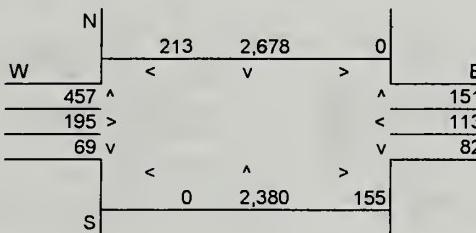
Intersection: MLK/Crossover
 Analysis Condition: Baseline Traffic Volumes w/Project

		Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
North-South Roadway:	Crossover	At Grade	2	10	10
East-West Roadway:	MLK	At Grade	2	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 6,157
 E-W Road: 997

N-S Road: 5,879
 E-W Road: 1,047

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	A ₁ Reference CO Concentrations			B Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	50 Feet	100 Feet	300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	6,157	14.08	4.94	3.47	1.47
East-West Road	2.2	1.7	1.0	997	14.08	0.31	0.24	0.14
P.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	5,879	14.08	4.72	3.31	1.41
East-West Road	2.2	1.7	1.0	1,047	14.08	0.32	0.25	0.15

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	11.0	10.8	7.7
100 Feet from Roadway Edge	9.4	9.3	6.6
300 Feet from Roadway Edge	7.4	7.3	5.1

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

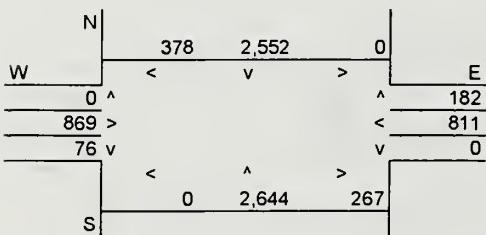
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2005

Roadway Data

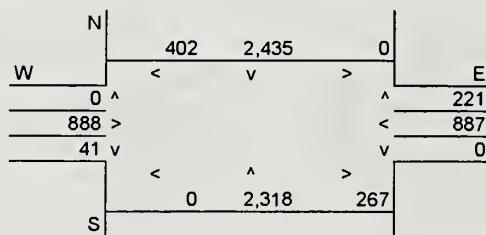
Intersection: Lincoln/19th
 Analysis Condition: Baseline Traffic Volumes w/Project

North-South Roadway:	19th	Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
		At Grade	At Grade	At Grade	At Grade
East-West Roadway:	Lincoln	At Grade	4	10	10
		At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 5,756
 E-W Road: 2,134

N-S Road: 5,376
 E-W Road: 2,263

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,756	14.08	4.38	3.08	1.30
East-West Road	2.2	1.7	1.1	2,134	14.08	0.66	0.51	0.33
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	5,376	14.08	4.09	2.88	1.21
East-West Road	2.2	1.7	1.1	2,263	14.08	0.70	0.54	0.35

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
	50 Feet from Roadway Edge	10.8	7.5
100 Feet from Roadway Edge	9.3	9.2	6.5
300 Feet from Roadway Edge	7.4	7.3	5.2

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

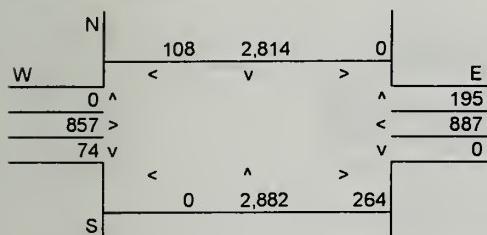
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

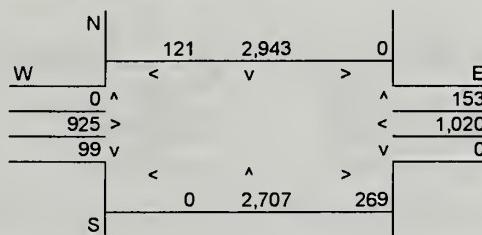
Intersection: Park Presidio/Fulton
 Analysis Condition: Future Traffic Volumes w/Project

Roadway Type	No. of Lanes	Average Speed	
		A.M.	P.M.
At Grade	4	10	10
At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 6,034
 E-W Road: 2,203

N-S Road: 6,018
 E-W Road: 2,367

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000¹

Roadway	Reference CO Concentrations			Traffic Volume	Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,034	10.78	3.51	2.47	1.04
East-West Road	2.2	1.7	1.1	2,203	10.78	0.52	0.40	0.26
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,018	10.78	3.50	2.47	1.04
East-West Road	2.2	1.7	1.1	2,367	10.78	0.56	0.43	0.28

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	9.8	9.8	6.9
100 Feet from Roadway Edge	8.6	8.6	6.0
300 Feet from Roadway Edge	7.0	7.1	4.9

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

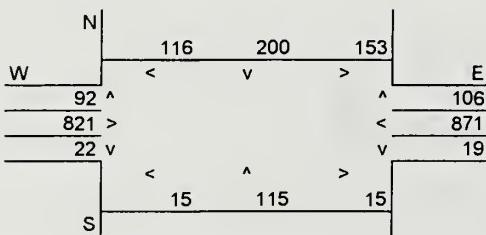
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

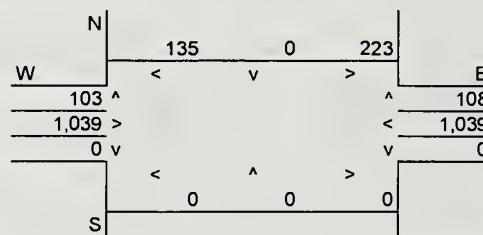
Intersection: Arguello/Fulton
 Analysis Condition: Future Traffic Volumes

North-South Roadway:	Arguello	Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
		At Grade	At Grade	10	10
East-West Roadway:	Fulton	At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 782
 E-W Road: 1,985

N-S Road: 569
 E-W Road: 2,409

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	782	10.78	0.19	0.14	0.09
East-West Road	5.4	3.8	1.6	1,985	10.78	1.16	0.81	0.34
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	569	10.78	0.13	0.10	0.07
East-West Road	5.4	3.8	1.6	2,409	10.78	1.40	0.99	0.42

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	7.1	7.3	5.1
100 Feet from Roadway Edge	6.7	6.8	4.8
300 Feet from Roadway Edge	6.2	6.2	4.4

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

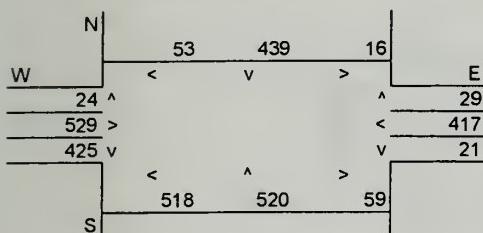
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

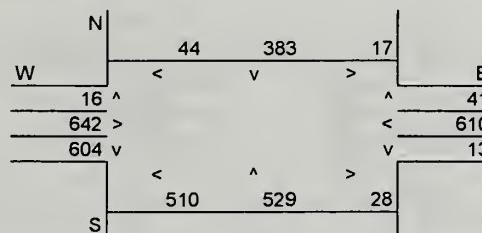
Intersection: Stanyan/Fulton
 Analysis Condition: Future Traffic Volumes w/Project

		Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
North-South Roadway:	Stanyan	At Grade	4	10	10
East-West Roadway:	Fulton	At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 1,982
 E-W Road: 1,966

N-S Road: 2,067
 E-W Road: 2,426

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000¹

Roadway	Reference CO Concentrations			Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	1,982	10.78	1.15	0.81	0.34
East-West Road	2.2	1.7	1.1	1,966	10.78	0.47	0.36	0.23
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	2,067	10.78	0.49	0.38	0.25
East-West Road	5.4	3.8	1.6	2,426	10.78	1.41	0.99	0.42

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	7.4	7.6	5.4
100 Feet from Roadway Edge	6.9	7.1	5.0
300 Feet from Roadway Edge	6.3	6.4	4.5

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

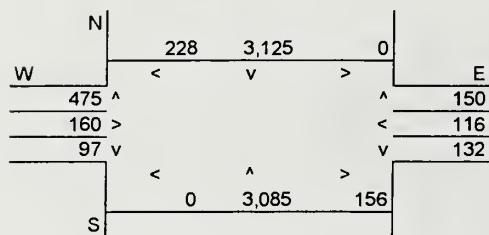
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

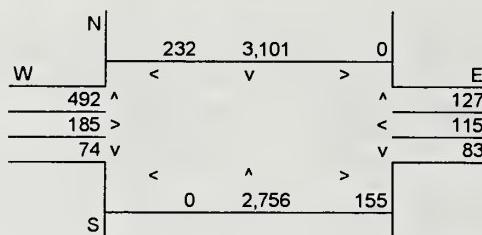
Intersection: MLK/Crossover
 Analysis Condition: Future Traffic Volumes w/Project

	Roadway Type	No. of Lanes	Average Speed	
			A.M.	P.M.
North-South Roadway:	Crossover	At Grade	2	10
East-West Roadway:	MLK	At Grade	2	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	7,063	N-S Road:	6,708
E-W Road:	1,076	E-W Road:	1,098

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	A ₁ Reference CO Concentrations			B Traffic Volume	C Emission Factors ¹	Estimated CO Concentrations		
	50 Feet	100 Feet	300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	7,063	10.78	4.34	3.05	1.29
East-West Road	2.2	1.7	1.0	1,076	10.78	0.26	0.20	0.12
P.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	6,708	10.78	4.12	2.89	1.23
East-West Road	2.2	1.7	1.0	1,098	10.78	0.26	0.20	0.12

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	10.3	10.1	7.2
100 Feet from Roadway Edge	9.0	8.8	6.3
300 Feet from Roadway Edge	7.2	7.1	5.0

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

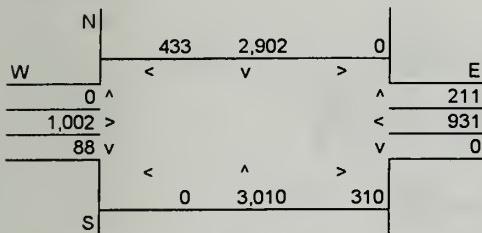
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

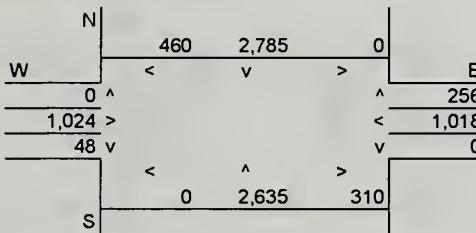
Intersection: Lincoln/19th
 Analysis Condition: Future Traffic Volumes w/Project

		Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
North-South Roadway:	19th	At Grade	4	10	10
East-West Roadway:	Lincoln	At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 6,556
 E-W Road: 2,454

N-S Road: 6,136
 E-W Road: 2,608

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000¹

Roadway	A ₁	A ₂	A ₃	B	C	Estimated CO Concentrations		
	Reference CO Concentrations 50 Feet	100 Feet	300 Feet	Traffic Volume	Emission Factors ¹	50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,556	10.78	3.82	2.69	1.13
East-West Road	2.2	1.7	1.1	2,454	10.78	0.58	0.45	0.29
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,136	10.78	3.57	2.51	1.06
East-West Road	2.2	1.7	1.1	2,608	10.78	0.62	0.48	0.31

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	10.1	9.9	7.1
100 Feet from Roadway Edge	8.9	8.7	6.2
300 Feet from Roadway Edge	7.2	7.1	5.0

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

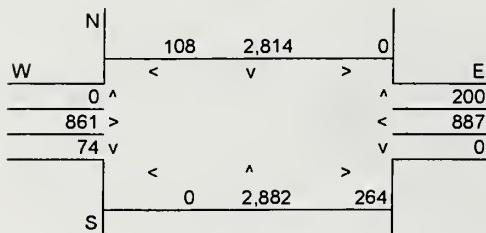
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

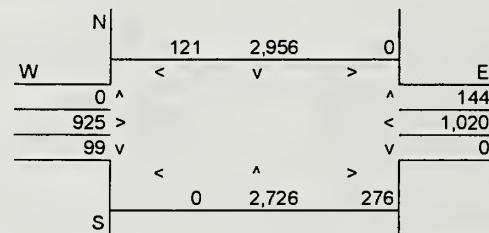
Intersection: Park Presidio/Fulton
 Analysis Condition: Future Traffic Volumes

Roadway Type	No. of Lanes	Average Speed	
		A.M.	P.M.
At Grade	4	10	10
At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 6,034
 E-W Road: 2,212

N-S Road: 6,057
 E-W Road: 2,365

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	A ₁	A ₂	A ₃	B	C	Estimated CO Concentrations		
	Reference CO Concentrations 50 Feet	100 Feet	300 Feet	Traffic Volume	Emission Factors ¹	50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,034	10.78	3.51	2.47	1.04
East-West Road	2.2	1.7	1.1	2,212	10.78	0.52	0.41	0.26
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,057	10.78	3.53	2.48	1.04
East-West Road	2.2	1.7	1.1	2,365	10.78	0.56	0.43	0.28

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	9.8	9.8	6.9
100 Feet from Roadway Edge	8.6	8.7	6.1
300 Feet from Roadway Edge	7.0	7.1	4.9

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

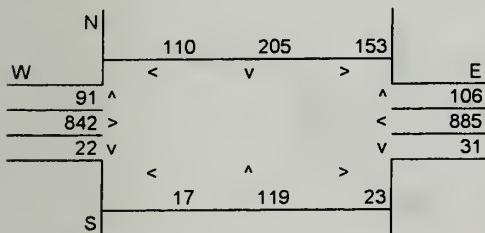
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

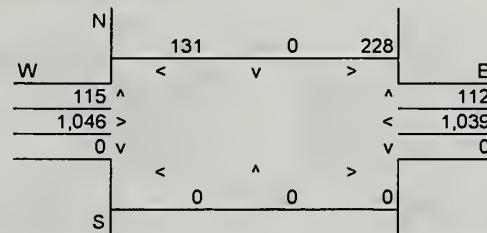
Intersection: Arguello/Fulton
 Analysis Condition: Future Traffic Volumes

North-South Roadway:	Arguello	Roadway Type	No. of Lanes	Average Speed	
			At Grade	A.M.	P.M.
			At Grade	10	10
East-West Roadway:	Fulton				

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 784
 E-W Road: 2,040

N-S Road: 586
 E-W Road: 2,425

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000¹

Roadway	A ₁	A ₂	A ₃	B	C	Estimated CO Concentrations		
	Reference CO Concentrations 50 Feet	100 Feet	300 Feet	Traffic Volume	Emission Factors ¹	50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	784	10.78	0.19	0.14	0.09
East-West Road	5.4	3.8	1.6	2,040	10.78	1.19	0.84	0.35
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	586	10.78	0.14	0.11	0.07
East-West Road	5.4	3.8	1.6	2,425	10.78	1.41	0.99	0.42

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEOA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	7.1	7.3	5.1
100 Feet from Roadway Edge	6.7	6.8	4.8
300 Feet from Roadway Edge	6.2	6.2	4.4

² Methodology from Bay Area Air Quality Management District BAAQMD CEOA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

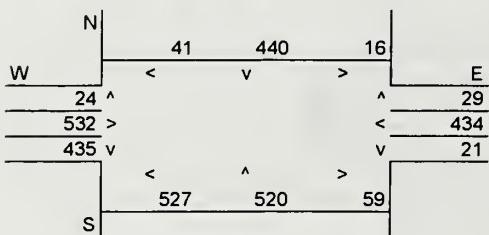
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

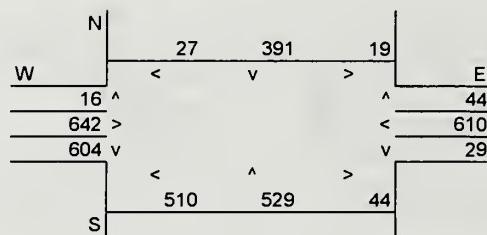
Intersection: Stanyan/Fulton
 Analysis Condition: Future Traffic Volumes

North-South Roadway:	Stanyan	Roadway Type	No. of Lanes	Average Speed	
				A.M.	P.M.
		At Grade	At Grade	At Grade	At Grade
East-West Roadway:	Fulton	At Grade	4	10	10
		At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 2,002
 E-W Road: 1,993

N-S Road: 2,107
 E-W Road: 2,409

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	2,002	10.78	1.17	0.82	0.35
East-West Road	2.2	1.7	1.1	1,993	10.78	0.47	0.37	0.24
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	2,107	10.78	0.50	0.39	0.25
East-West Road	5.4	3.8	1.6	2,409	10.78	1.40	0.99	0.42

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	7.4	7.6	5.4
100 Feet from Roadway Edge	6.9	7.1	5.0
300 Feet from Roadway Edge	6.3	6.4	4.5

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

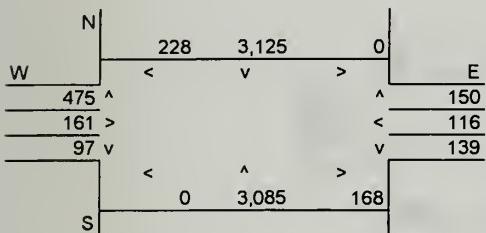
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

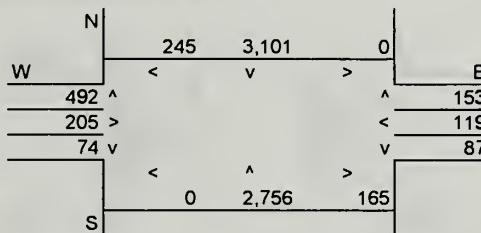
Intersection: MLK/Crossover
 Analysis Condition: Future Traffic Volumes

Roadway Type	No. of Lanes	Average Speed	
		A.M.	P.M.
At Grade	2	10	10
At Grade	2	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 7,063
 E-W Road: 1,077

N-S Road: 6,747
 E-W Road: 1,135

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000¹

Roadway	A ₁	A ₂	A ₃	B	C	Estimated CO Concentrations		
	Reference CO Concentrations 50 Feet	100 Feet	300 Feet	Traffic Volume	Emission Factors ¹	50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	7,063	10.78	4.34	3.05	1.29
East-West Road	2.2	1.7	1.0	1,077	10.78	0.26	0.20	0.12
P.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	6,747	10.78	4.15	2.91	1.24
East-West Road	2.2	1.7	1.0	1,135	10.78	0.27	0.21	0.12

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M.	P.M.	8-Hour
	Peak Hour	Peak Hour	
50 Feet from Roadway Edge	10.3	10.2	7.2
100 Feet from Roadway Edge	9.0	8.9	6.3
300 Feet from Roadway Edge	7.2	7.1	5.0

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10419-00
 Project Title: Academy of Sciences

Background Information

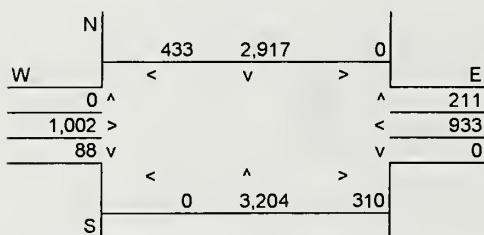
Nearest Air Monitoring Station measuring CO: None
 Background 1-hour CO Concentration (ppm): 5.7
 Background 8-hour CO Concentration (ppm): 4.0
 Persistence Factor: 0.7
 Analysis Year: 2010

Roadway Data

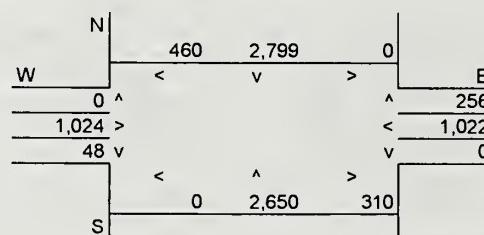
Intersection: Lincoln/19th
 Analysis Condition: Future Traffic Volumes

	Roadway Type	No. of Lanes	Average Speed	
			A.M.	P.M.
North-South Roadway:	At Grade	4	10	10
East-West Roadway:	At Grade	4	10	10

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road: 6,765
 E-W Road: 2,456

N-S Road: 6,165
 E-W Road: 2,612

Roadway CO Contributions and Concentrations

Emissions = $(A \times B \times C) / 100,000^1$

Roadway	Reference CO Concentrations			Traffic Volume	Emission Factors ¹	Estimated CO Concentrations		
	A ₁ 50 Feet	A ₂ 100 Feet	A ₃ 300 Feet			50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,765	10.78	3.94	2.77	1.17
East-West Road	2.2	1.7	1.1	2,456	10.78	0.58	0.45	0.29
P.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	6,165	10.78	3.59	2.53	1.06
East-West Road	2.2	1.7	1.1	2,612	10.78	0.62	0.48	0.31

¹ Methodology and emission factors from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration²

8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration²

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	10.3	9.9	7.2
100 Feet from Roadway Edge	9.0	8.7	6.3
300 Feet from Roadway Edge	7.2	7.1	5.0

² Methodology from Bay Area Air Quality Management District BAAQMD CEQA Guidelines (1996).

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